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**SERVICE MANUAL
DOCUMENTATION TECHNIQUE
TECHNISCHE DOKUMENTATION
DOCUMENTAZIONE TECNICA
DOCUMENTACION TECNICA**

X1000

(DECK MECHANISM)



WARNING : Before servicing this chassis please read the safety recommendations.
ATTENTION : Avant toute intervention sur ce châssis, lire les recommandations de sécurité.
ACHTUNG : Vor jedem Eingriff auf diesem Chassis, die Sicherheitsvorschriften lesen.
ATTENZIONE : Prima di intervenire sullo chassis, leggere le norme di sicurezza.
IMPORTANTE : Antes de cualquier intervención, leer las recomendaciones de seguridad.

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1. DESCRIPTION OF THE MECHANISM

1-1 Characteristic Of the T-Mecha Deck Mechanism

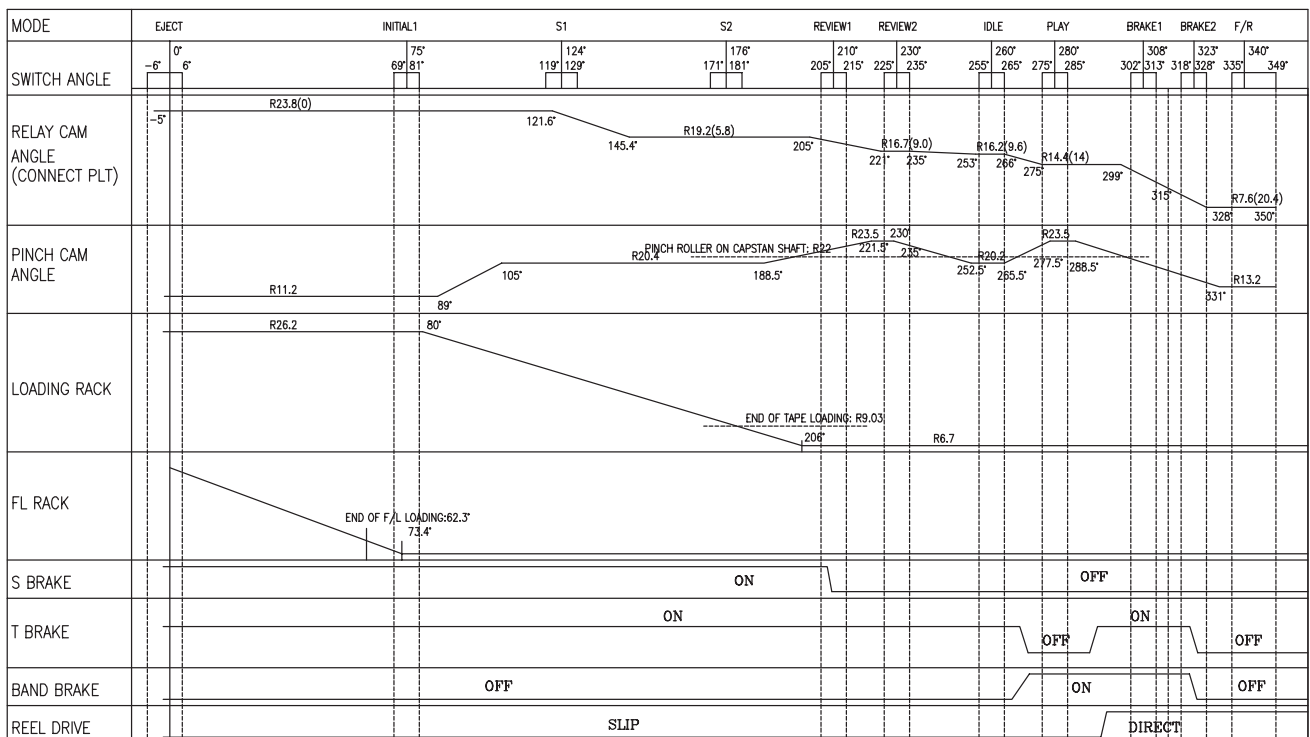
- 1) T-Mecha Deck follows the VHS standard.
- 2) T-Mecha Deck uses three motors(Drum motor, Capstan motor and L/C motor)
- 3) T-Mecha Deck uses L/C motor to drive Front Loading.
- 4) T-Mecha Deck recognizes each mode by using a 4-Bit Mode signal.
This 4-Bit Mode signal is generated by the Cam Switch which is driven by the L/C Motor.
- 5) T-Mecha Deck is operated by 6 Modes(Eject/Initial/Review/Idle/Play, Stop,Slow/Brake/FF&Rewind).
- 6) T-Mecha Deck reduces the mode shifting time, that is, picture playing time by using the Full Loading System that has the Drum wrapped by the tape.
- 7) T-mecha Deck is separated from the Main PCB.

When assembling, it is connected by B-B Type connector.

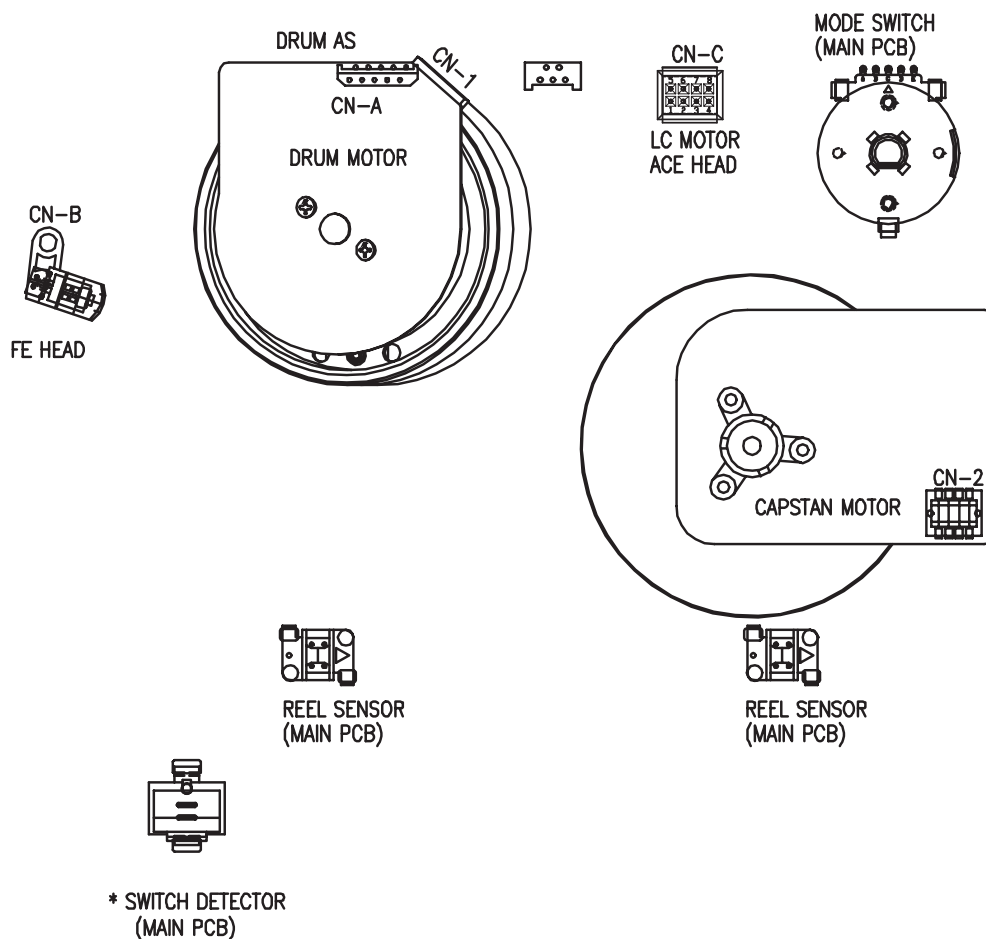
The Capstan motor and Drum output of T-mecha Deck and the Main PCB are directly connected without using cable.

1-2 Timming Chart

T-MECHA MODE TIMMING CHART



1-3 Wire Diagram & Connector pin Arrangement



* APPLIED TO ONLY RECORD MODEL

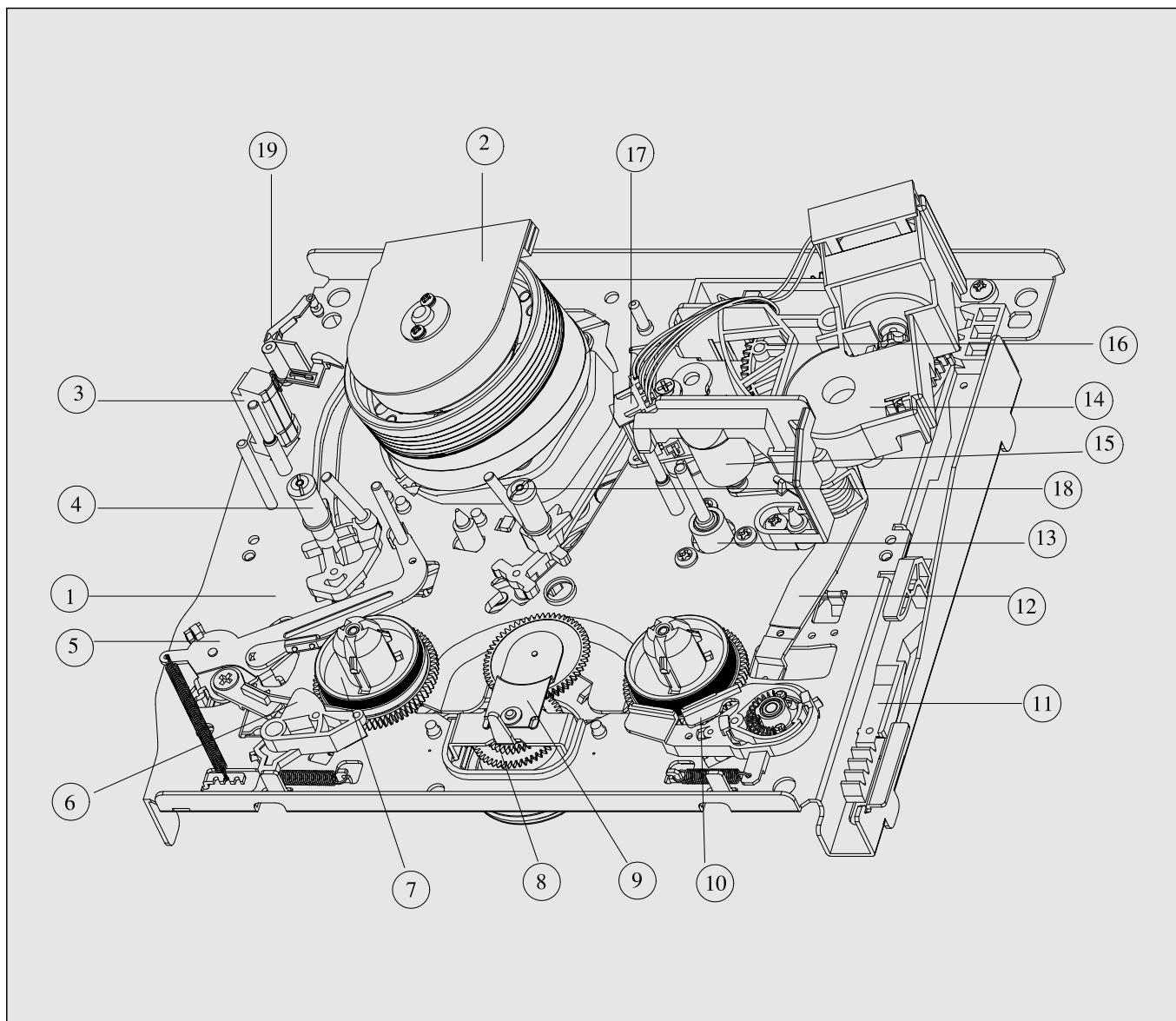
CN-A		CN-B		CN-C		CN-1		CN-2		
4HEAD Hi-Fi	1	AFM-L	1	FE HEAD	1	AE HEAD	1	D SPEED CTL	1	EVER 5.2V
	2	AFM COMM	2	FE HEAD	2	CTL(-)	2	D MT GND	2	C. F(L)/R(H)
	3	AFM-R			3	GND	3	D FG	3	C FG
2HEAD	4	SP-L			4	CTL(+)	4	D MT 12.3V	4	C Vcc
	5	SP COMM			5	A.HEAD(PB)			5	C SPEED CTL
	6	SP-R			6	LM(+)			6	C.I.LIMIT
	7	GND			7	A.HEAD(REC)			7	C. MT GND
4HEAD MONO	8	EP-R			8	LM(-)			8	C IC GND
	9	EP COMM								
	10	EP-L								

2. ASSEMBLY DIAGRAM & MAJOR PARTS CHECK

2-1. ASSEMBLING DIAGRAM

2-1-1) DECK ASSEMBLY DIAGRAM

A. UPPER VIEW



1. MAINBASE ASS'Y

2. DRUM ASS'Y

3. FE HEAD

4. S SLANT POLE ASS'Y

5. THENSION BAND ASS'Y

6. S BRAKE ASS'Y

7. S REEL TABLE

8. REEL BRKT TOTAL ASS'Y

9. IDLER PLATE TOTAL ASS'Y

10. T BRAKE ASS'Y

11. FL RACK

12. REALAY LEVER

13. CAPSTAN MOTOR

14. LC BRKT ASS'Y

15. PINCH LEVER TOTAL ASS'Y

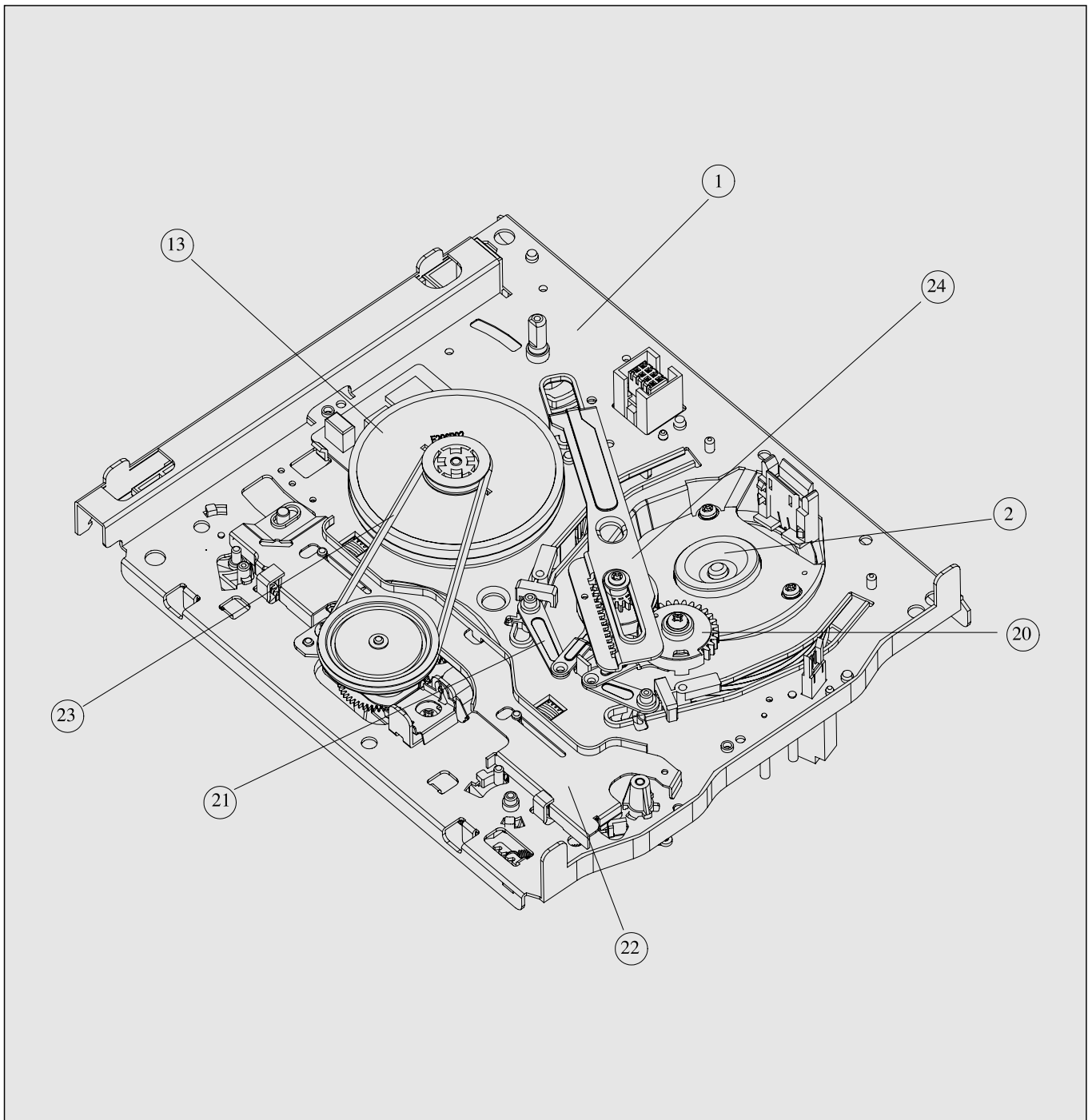
16. CAM GEAR

17. AC HEAD ASS'Y

18. T SLANT POLE ASS'Y

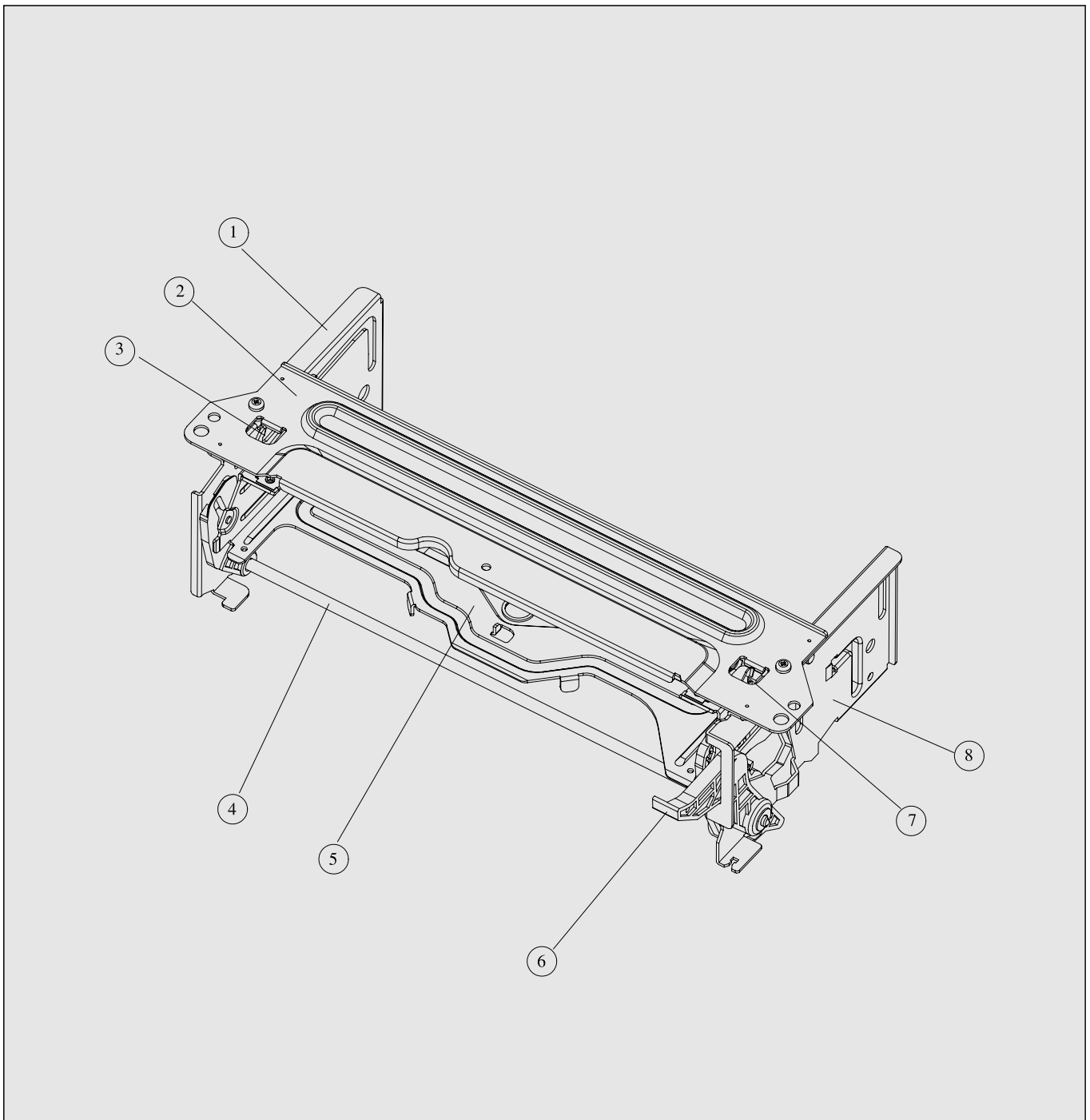
19. HEAD CLEANER

B. BOTTOM VIEW



- 20. L LOADING ASS'Y
- 21. R LOADING ASS'Y
- 22. CONNECT PLATE
- 23. REEL BELT
- 24. LOADING RACK

2-1-2) FRONT LOADING assemble diagram



- 1. FL BRKTL
- 2. TOP PLATE
- 3. SAFETY LEVER
- 4. LOADING LEVER AS4
- 5. CST HOLDER AS

- 6. DOOR OPENER
- 7. SAFETY LEVER R
- 8. FL BRKT R

2-2. PERIODIC MAINTENANCE AND SERVICE SCHEDULE

2-2-1) Periodic maintenance and Service Schedule

- A. In order to effectively maintain the excellent performance and fully utilize the features of this apparatus, and to lengthen the life of mechanism and tapes, we strongly urge you to perform the periodic maintenance and inspection as described below.
- ; Following should be done after the substitution of parts of deck or correction of deck failure.
- B. Cleaning of the DRUM TOTAL ASS`Y
- Slowly turning DRUM TOTAL ASS`Y, wipe the drum surface with clean cloth soaked “ in alcohol. (Don’t connect the power when turning the UPPER DRUM)
 - Don’t wipe the Head-Tip vertically with cleaning cloths.
- C. Tape transporting section cleaning
- Clean the tape transporting section with clean cloth soaked in alcohol.
- D. Driving section cleaning
- Clean the driving section with clean cloth soaked in alcohol.
- E. Everyday inspection
- Perform the maintenance and inspection periodically according to the number of use.
 - Refer to the table 2.2.3.

2-2-2) Cleaning and Lubrication

- A. Cleaning of Tape Transporting section and driving section
- a. Cleaning of Tape Transporting section
- The following parts should be cleaned after every 500 hours of use.
 - TENSION POLE • S SLANT POLE • AC HEAD/AE HEAD
 - S GUIDE POST • VIDEO HEAD / DRUM • T GUIDE POST
 - FE HEAD • T SLANT POLE • CAPSTAN SHAFT
 - S GUIDE ROLLER • T GUIDE ROLLER • PINCH ROLLER
 - Because the above part contacts with video tape, they tend to be stained with dusts “and foreign substances which can cause the bad effect on the picture and damage the tape sometimes.
 - After cleaning with alcohol, be sure to dry the surface of drum thoroughly before using a tape.
- b. Cleaning of the driving section
- REEL TABLE • CAPSTAN FLYWHEEL/PULLEY • REEL PULLEY
- B. Lubrication
- REEL GEAR POST :
After the cleaning the parts with alcohol, lubricate them with one or two drops of oil.”
 - S/T REEL TABLE POST :
After the cleaning the parts with alcohol, lubricate them with grease.”

2-2-3) SERVICE SCHEDULE FOR EACH PARTS

Following parts should be checked according to the recommended intervals.

NAME	PERIODIC SERVICE (TIME)				
	1000	2000	3000	4000	5000
DRUM TOTAL ASS'Y	★	⊙	★	⊙	★
CAPSTAN MOTOR		⊙		⊙	
L/C BRKT TOTAL ASS'Y		⊙		⊙	
REEL BELT		⊙		⊙	
IDLER PLATE TOTAL ASS'Y		⊙		⊙	
REEL TABLE			⊙		
T BRAKE ASS'Y		⊙	⊙	⊙	
TENSION BAND ASS'Y		⊙	⊙	⊙	
PINCH LEVER TOTAL ASS'Y		★	⊙	★	
AC HEAD ASS'Y			⊙		
FE HEAD					⊙
REEL GEAR TOTAL ASS'Y		⊙		⊙	

★ : Check and Replace if necessary. ⊙ : Replace

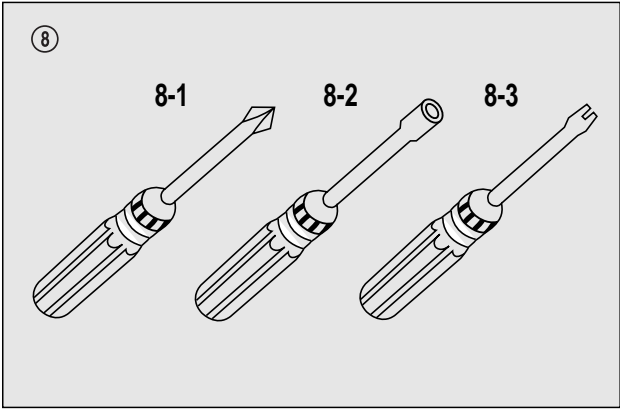
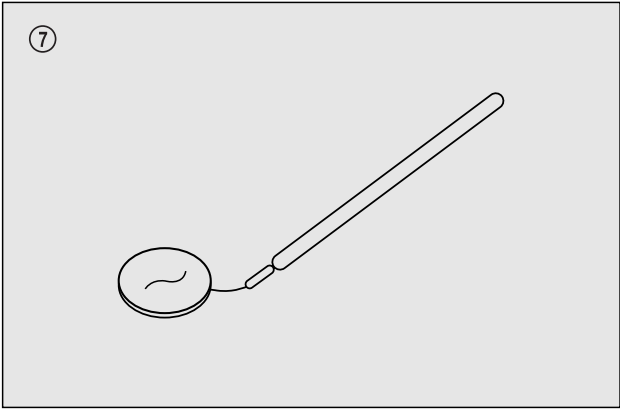
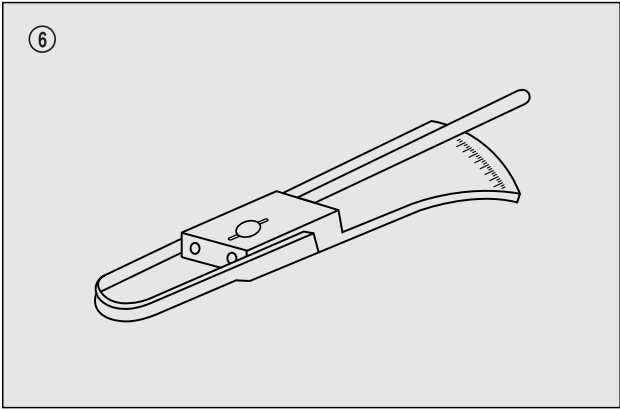
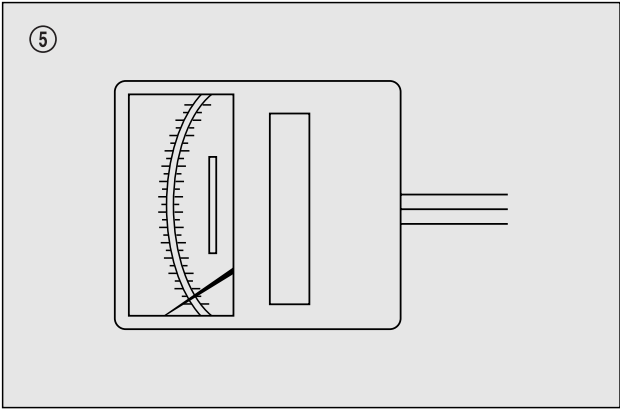
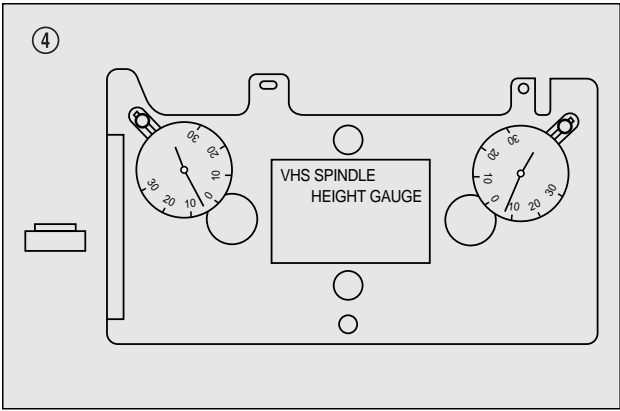
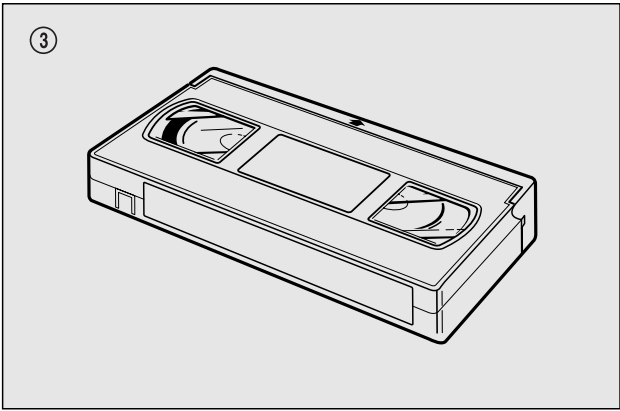
Note: Even though the unit is not used frequently, cleaning, lubrication and replacement of the belt should be undertaken every 2 years.

2-3. JIGS AND TOOLS

2-3-1) LIST OF JIGS AND TOOLS

NO	ITEMS	MODEL	FIG. NO	REMARKS
1	ALIGNMENT TAPE	NTSC: SP MONOSCOPE 7KHz SP COLORBAR 1KHz (EP MONOSCOPE) PAL/SCAM: SP MONOSCOPE 6KHz SP COLORBAR 1KHz (LP MONOSCOPE)	①	CHECKING OF THE TAPE TRANSPORTING SYSTEM
2	CLEANING TAPE (DAEWOO)	DHC-602V	②	CHECKING OF THE TAPE TRANSPORTING SYSTEM
3	CASSETTE TAPE (KOKUSAI)	KT-300NV KT-300RV	②	MEASUREMENT OF REEL TORQUE
4	VHS SPINDLE HEIGHT GAUGE	TSH-V4	④	MEASUREMENT OF REEL HEIGHT
5	TENTELO METER (TENTELO)	T2-H7-UM	⑤	MEASUREMENT OF THE BACK TENSION
6	FAN TYPE TENSION METER	BELOW 3KG	⑥	MEASUREMENT OF THE PRESSING FORCE FOR THE PINCH ROLLER
7	DENTAL MIRROR		⑦	CHECKING OF THE TAPE TRANSPORTING SYSTEM
8	+DRIVER		⑧ -1	ASSEMBLY, DISASSEMBLY AND ADJUSTMENT
	HEX DRIVER		⑧ -2	
	ADJUSTMENT DRIVER		⑧ -3	

2-3-2) SKETCH OF JIGS AND TOOLS



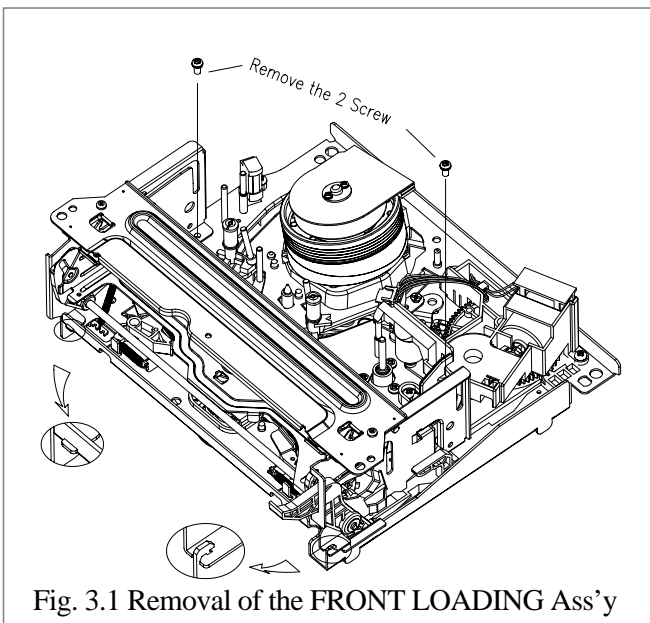
3. DISASSEMBLY AND REPLACEMENT

3-1. Removal of the FRONT LOADING Ass'y (Fig. 3.1)

NOTE:

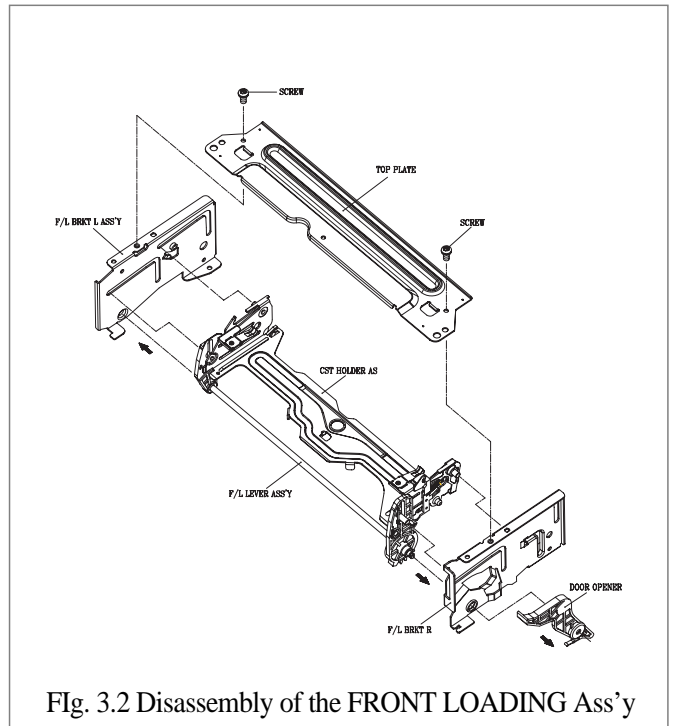
Remove the FRONT LOADING Ass'y in eject mode.

- Unscrew the 2 screw holding the F/L ass'y.
- Separate the F/L Ass'y from the MAINBASE ass'y by lifting the rear part of F/L (Screw Hole).



3-2. Disassembly of FRONT LOADING Ass'y (Fig. 3.2~3.5)

- Remove the washer holding the door opener and separate F/L Assembly by moving the DOOR OPENER in the direction of arrow.
- Remove the 2 screw holding the TOP PLATE and separate the CASSETTE HOLDER Ass'y by moving the FL BRKT L and FL BRKT R in the direction of arrow. (Fig. 3.2)



- c. Separate the LOADING LEVER Ass'y by pressing the connection point from the CASSETTE HOLDER Ass'y. (Fig. 3.4)
- d. Remove the SAFETY SPRING connecting the SAFETY LEVER and CASSTTE HOLDER PLATE. (Fig. 3.3)
- e. Remove the RELEASE SPRING connecting the RELEASE LEVER and SAFETY LEVER. (Fig. 3.3)

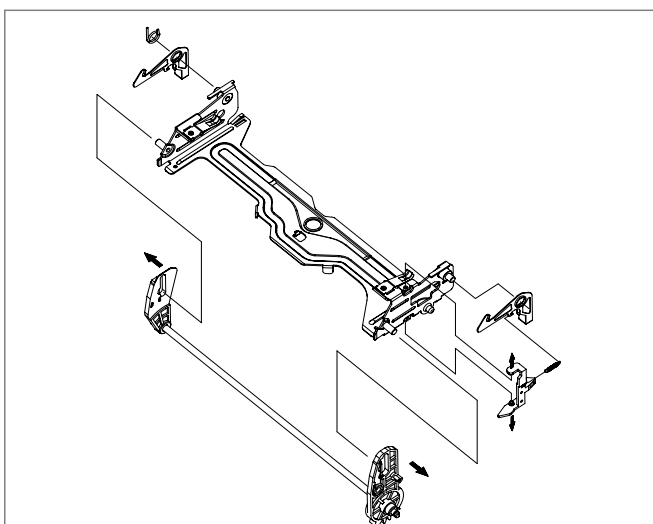


Fig. 3.3 Disassembly of the CASSETTE HOLDER Ass'y

CAUTION:

- Assemble the FRONT LOADING Ass'y in the reverse order of disassembly.
- Confirm that 2 bosses on the left side of the CASSETTE HOLDER Ass'y are inserted in the groove on the left side of the top plate. Insert 2 bosses on the right side of the CASSETTE HOLDER Ass'y into the groove of the F/L BRACKET R. (Fig. 3.4)

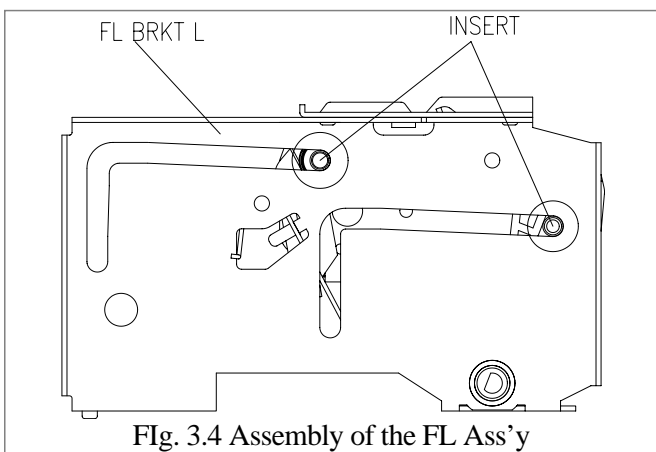


Fig. 3.4 Assembly of the FL Ass'y

3. Disassembly of DRUM Ass'y (Fig. 3.5)

- a. Turn over the DECK MECHANISM and holding the DRUM TOTAL Ass'y ② with hands, remove the 3 screw holding the drum total assembly with mainbase.
- b. Separate the DRUM TOTAL Ass'y from the deck paying attention there is no damage on the surface of VIDEO HEAD and DRUM.
- c. Assemble in the reverse order of disassembly.

CAUTION:

- After the assembly of the DRUM TOTAL Ass'y, check out if DECK Mechanism operate smoothly and adjustment of tape transmission section is OK.

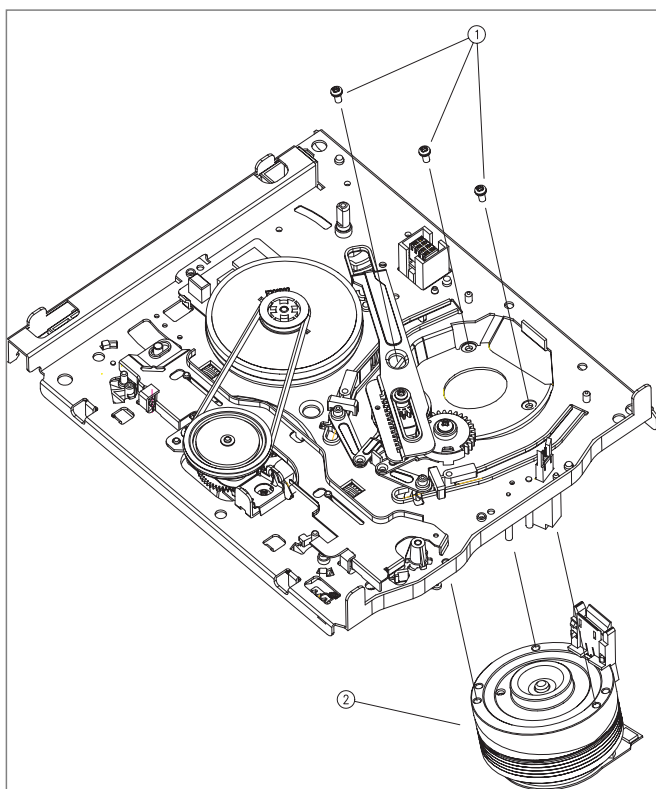


Fig. 3.5 Assembly of the DRUM TOTAL Ass'y

3-4. Disassembly of LOADING RACK, LOADING ASS'Y, S/T SLANT POLE ASS'Y (Fig. 3.6, 3.7)

- Turn the DECK MECHANISM over and remove the LOADING RACK ② after unscrewing the SCREW ①.
- Remove the R LOADING AS ③ and L LOADING AS ④.
- Remove the S SLANT POLE AS ⑤ and T SLANT POLE AS ⑥ by moving those part in arrow direction.

CAUTION:

- Take care GUIDE ROLLER of S/T SLANT POLE AS and SLANT POLE not to be stained with grease during assembly.
- Refer to Fig. 3.7 in assembly.

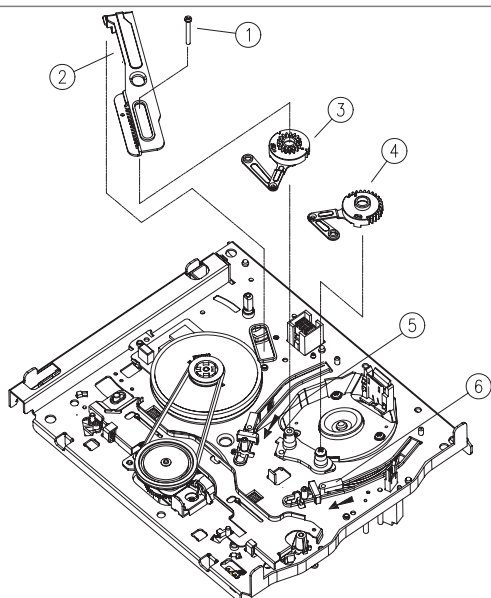


Fig. 3.6 Disassembly of the LOADING RACK, LOADING ASS'Y and the SLANT POLE ASS'Y

Confirm the Alignment before the assembly of RACK LOADING

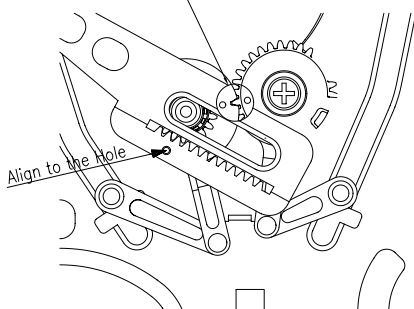


Fig. 3.7 Assembly of the L/R LOADING AS and the LOADING RACK

3-5. Disassembly of the A/C HEAD ASS'Y (Fig. 3.8)

- Remove the CONNECTOR ② from the AC HEAD Ass'y, use caution not to damage the HEAD connector pins.
- Separate the AC HEAD Ass'y ① after removing the screw ③.

CAUTION:

- After the assembly, adjust the tape transmission section by referring to chapter 5.
- After the adjustment of the tape transmission section, paint the 3 adjustment screw with locking paint.

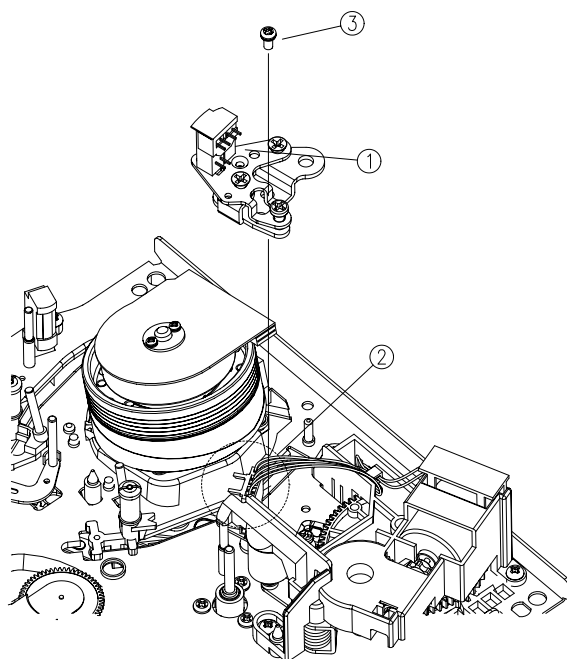


Fig. 3.8 Disassembly of the AC HEAD ASS'Y

3-6. Disassembly of the LC BRKT ASS'Y, PINCH LEVER TOTAL ASS'Y (Fig. 3.9)

- Separate the LC BRKT Ass'y ② after removing 3 screws ①.
- Separate the LC BRKT Ass'y ② from the DECK MECHANISM.
- Remove the PINCH LEVER TOTAL Ass'y ③.

CAUTION:

- After the assembly of the PINCH LEVER TOTAL Ass'y, adjust the tape transmission section by referring to chapter 5.
- Be careful not to get grease or other foreign materials on the surface of the pinch roller ④.
- Make sure if the end of the PINCH SPRING PINCH "A" is located at the end of the slot of CAM GEAR "B" in assembly. (Refer to Fig. 4.3)

3-7. Disassembly of the CAM GEAR, RELAY LEVER, FL RACK (Fig. 3.9)

- Separate the CAM GEAR ⑤ from the MAINBASE.
- Separate the RELAY LEVER ⑥ from the MAINBASE.
- Separate the FL RACK ⑦ from MAINBASE by moving to the arrow direction.

CAUTION:

- When reassembling, refer to Fig. 3.10, Fig. 3.11 and chapter 4.

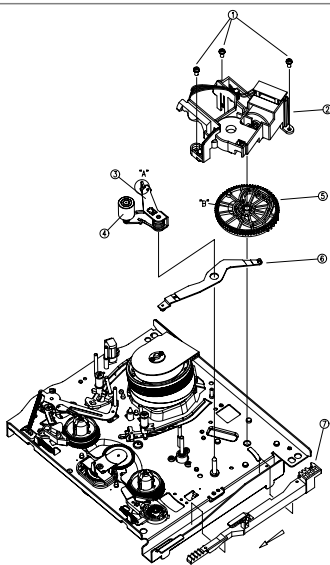


Fig. 3.9 Disassembly of the LC BRACKET ASS'Y from the PINCH LEVER TOTAL ASS'Y

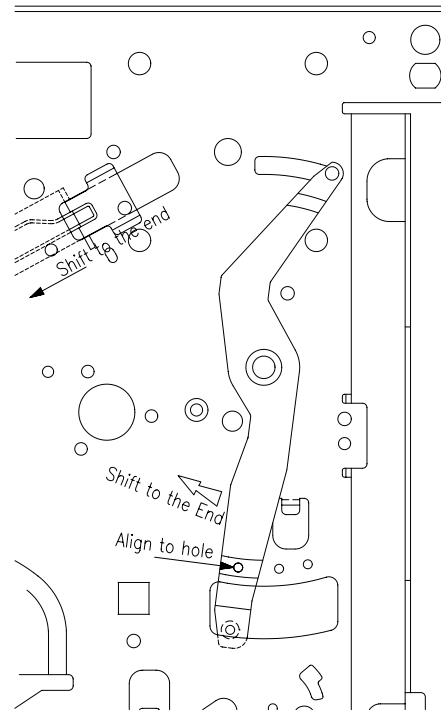


Fig. 3.10 Assembly of the CAM GEAR, RELAY LEVER

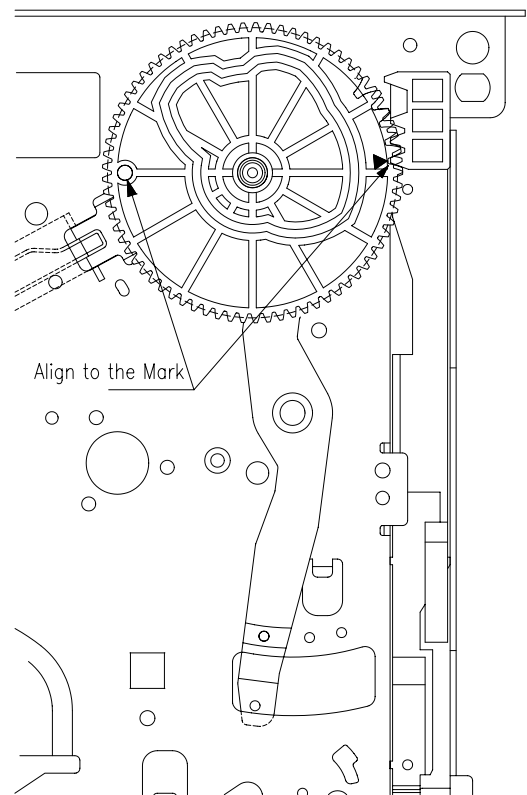


Fig. 3.11 Assembly of the CAM GEAR, FL RACK

3-8. Disassembly of the S/T BRAKE ASS'Y (Fig.3.12)

- Unhook the S BRAKE SPRING ③ from the MAINBASE HOOK ①.
- Remove the S BRAKE Ass'y ② from the mainbase.
- Remove the T BRAKE SPRING ⑥ from the MAINBASE HOOK ④.
- Remove the T BRAKE Ass'y ⑤.

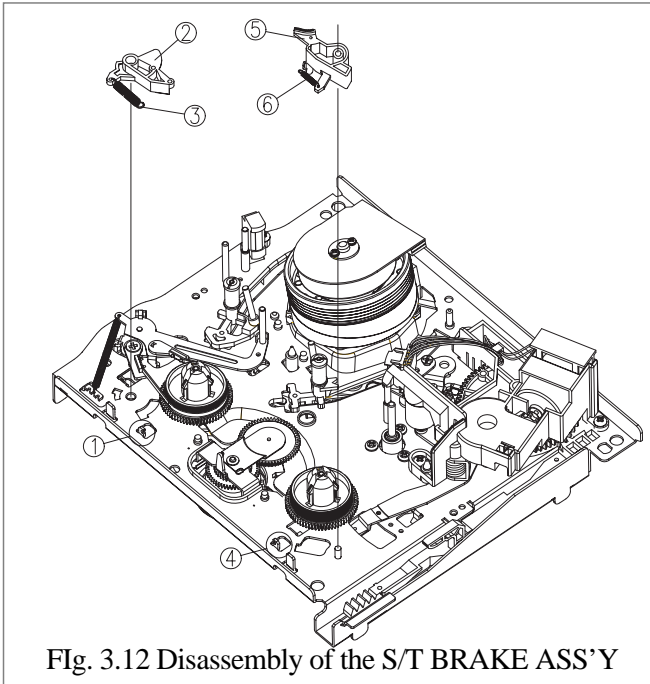


Fig. 3.12 Disassembly of the S/T BRAKE ASS'Y

3-9. Disassembly of the TENSION BAND ASS'Y (Fig. 3.13)

- Unhook the TENSION SPRING ② from the MAINBASE HOOK ①.
- Unhook the MAINBASE HOOK "A" and remove the TENSION BAND Ass'y ③ from the mainbase.

3-10. Disassembly of the Capstan Motor (Fig. 3.13)

CAUTION:

- After the assembly of TENSION BAND Ass'y on the mainbase, adjust the TENSION POLE location as shown in Fig. 3.14.
- Avoid getting Grease, Oil or Foreign substance on the FELT of the BAND BRAKE.
- Take care not to deform the MAINBASE HOOK "A" when separating the TENSION BAND Ass'y ③.

- Separate the CAPSTAN MOTOR ⑤ after the removal of 3 screws ④ holding the capstan motor.

3-11. Disassembly of the FE HEAD (Fig. 3.13)

- Remove the screw ⑥ and separate the FE HEAD ⑦ from the MAINBASE.

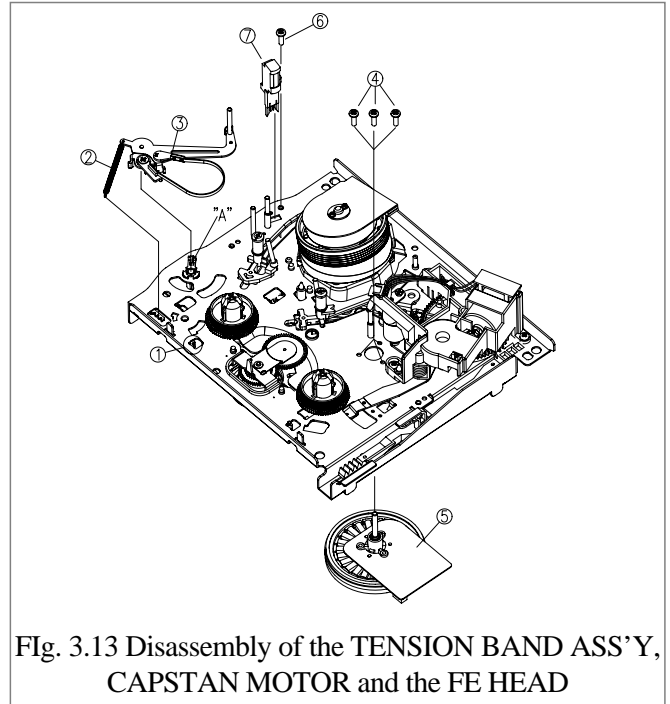


Fig. 3.13 Disassembly of the TENSION BAND ASS'Y, CAPSTAN MOTOR and the FE HEAD

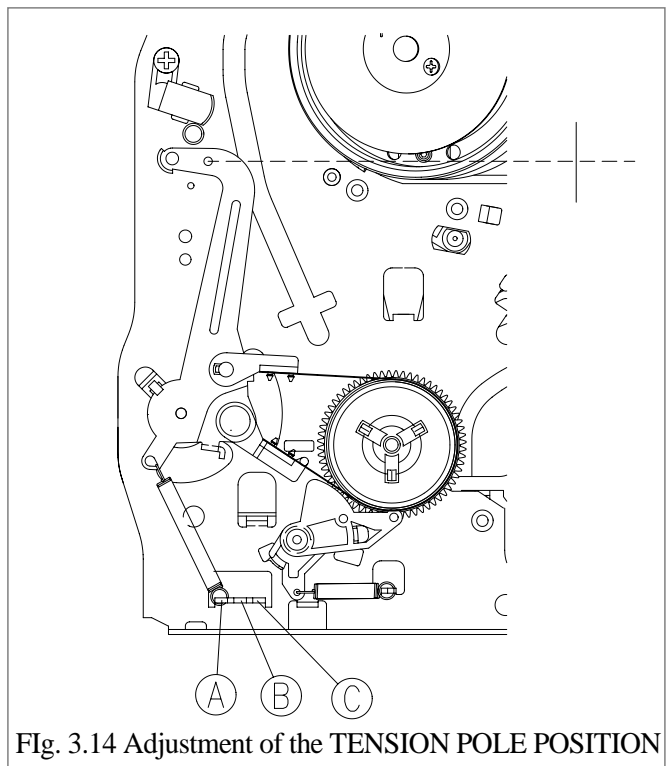


Fig. 3.14 Adjustment of the TENSION POLE POSITION

3-12. Disassembly of the REEL TABLE, IDLER PLATE TOTAL ASS'Y (Fig. 3.15)

- Remove the POLY WASHER ① and separate the IDLER PLATE TOTAL Ass'y ② from the mainbase.
- Remove the REEL TABLE ④ from the REEL TABLE POST ③ of the MAINBASE.

CAUTION:

- Take care not to deform the IDLER PLATE TOTAL Ass'y ② when assembling and disassembling.

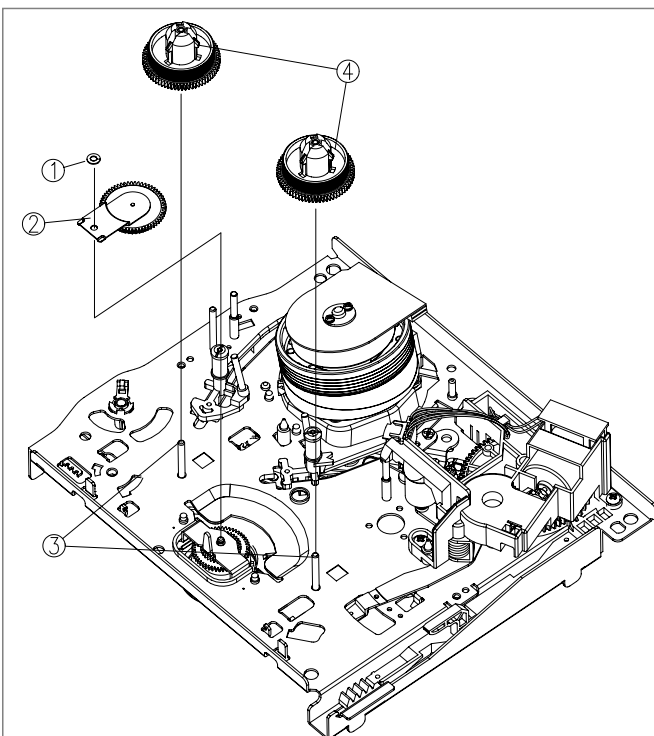


Fig. 3.15 Disassembly of the REEL TABLE and the IDLER PLATE TOTAL ASS'Y

3-13. Disassembly of the REEL BRKT TOTAL ASS'Y, CONNECT PLATE (Fig. 3.16)

- Turn over the DECK MECHANISM and remove 2 screws ①.
- Remove the REEL BRKT TOTAL Ass'y ② from the MAINBASE.
- Separate the CONNECT PLATE ③ from the MAINBASE by pushing to the direction of the arrow.

CAUTION:

- Avoid getting Grease, Oil or Foreign substance on the FELT of the Band BRAKE.
- Disassembly of the IDLER Ass'y should be precede the disassembly of the REEL BRKT TOTAL Ass'y.
- Check the operation of the REEL BRKT TOTAL Ass'y before assembly.
- Check for smooth operation of FF/REW, PLAY, CUE and REVIEW without existence noise.

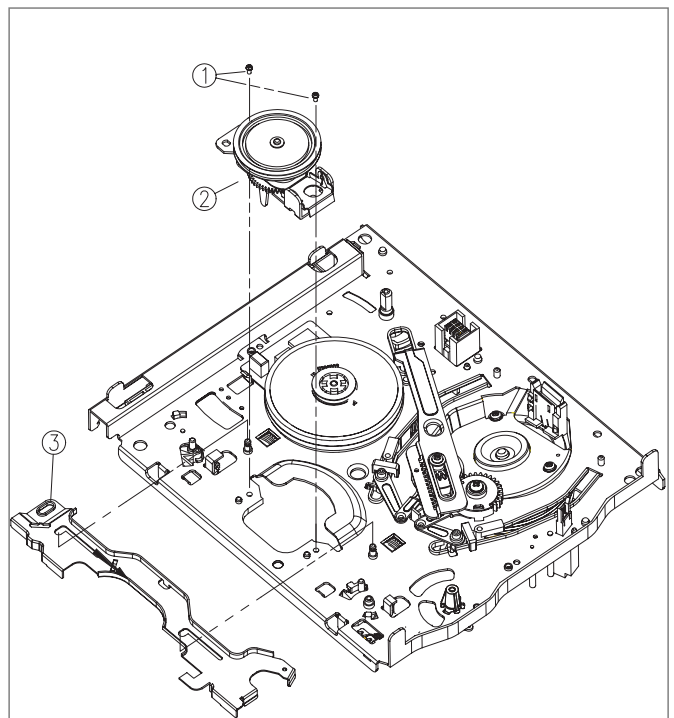


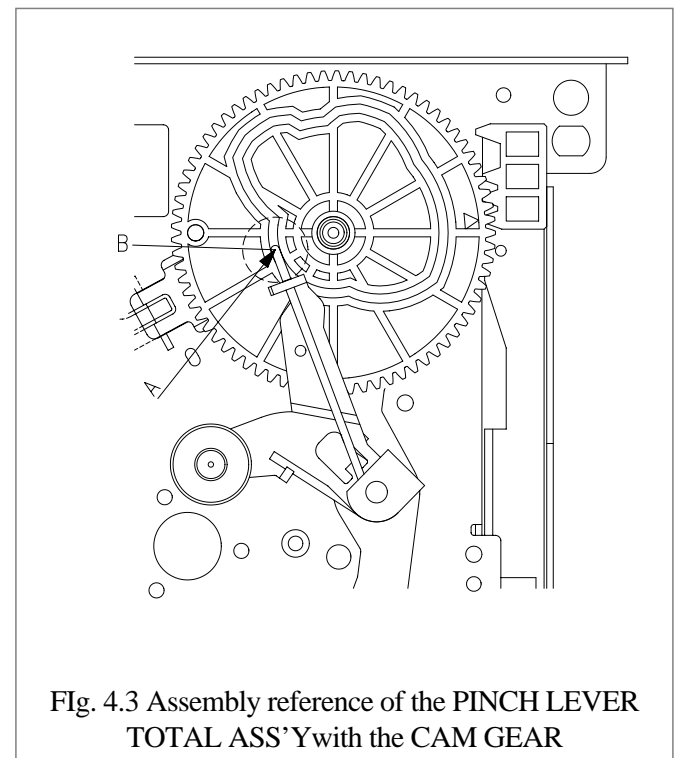
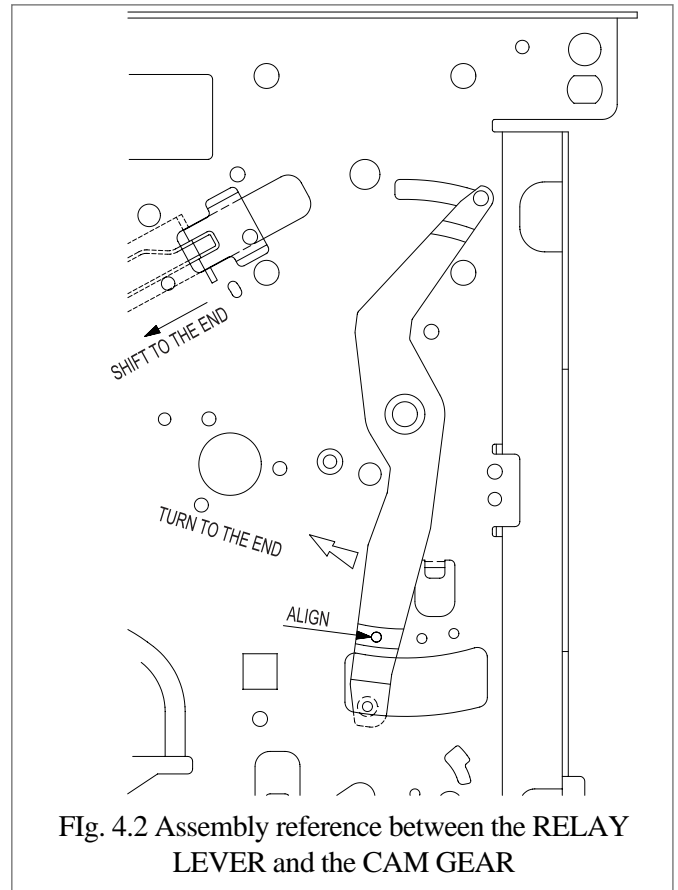
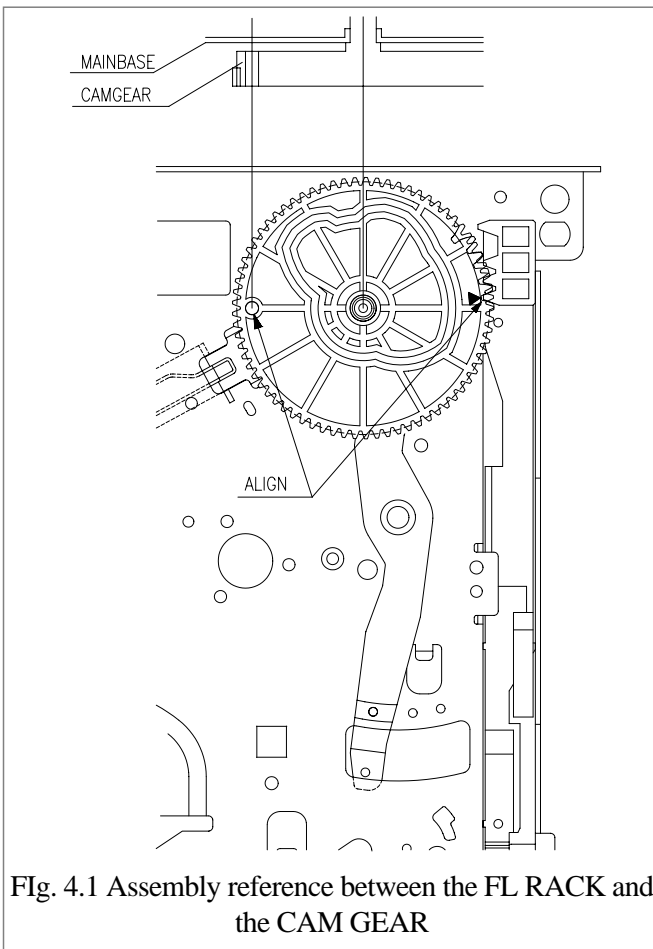
Fig. 3.16 Disassembly of the REEL BRKT TOTAL ASS'Y and the CONNECT PLATE

4. MECHANICAL ADJUSTMENT

4-1. Mechanical Adjustment (Fig. 4.1~4.4)

In case of disassembly and reassembly for fixing the mechanical problem, check the following check point.

- Make sure that the DATUM HOLE of the CAM GEAR is aligned with the DATUM HOLE in the MAINBASE in the EJECT mode as shown in Fig. 4.1.
- Make sure that the ending part “A” of the RELAY LEVER assembled on the CONNECT PLATE is aligned with the reference hole “B” of the MAINBASE as shown in Fig. 4.2.
- The end point “A” of PINCH SPRING PIN of the LEVER TOTAL Ass’y should be located within the slot “B” of the CAM GEAR. (Fig. 4.3)



- d. Make sure that the triangular mark “A” of the L LOADING Ass’y is aligned with the mark “b” of the R LOADING Ass’y. (Fig. 4.4)
- e. Reference hole “C” of the LOADING RACK should be aligned with the reference hole of the R LOADING Ass’y to make the teeth of the LOADING RACK is aligned as shown in Fig. 4.4.

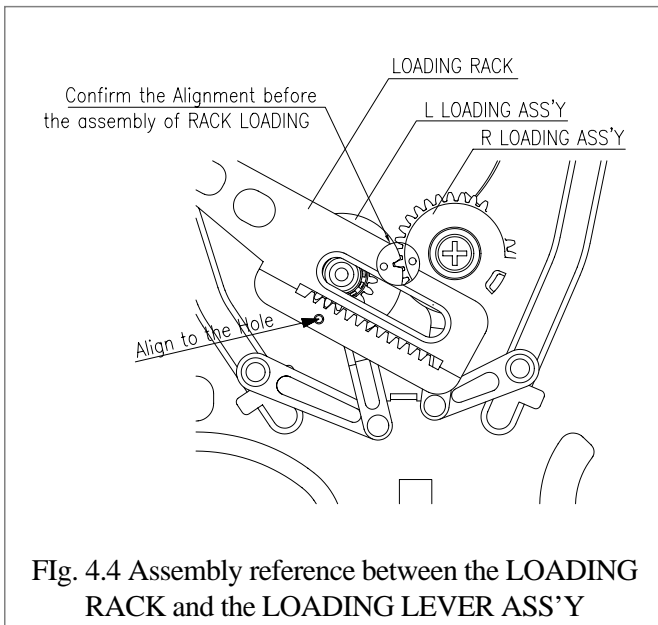


Fig. 4.4 Assembly reference between the LOADING RACK and the LOADING LEVER ASS'Y

4-2. Adjustment and measurement of the BACK TENSION (Fig. 4.5, 4.6)

- a. Check that the location of the TENSION POLE is in the right position. If not, adjust that by referring to the “4. Adjustment of the position of the TENSION POLE”.
- b. Playback a completely rewound T120 tape for 20 seconds. (Generally tape transporting section is settled down in 20 seconds)
- c. Measure the BACK TENSION by using the TENVELO METER. (Refer to Fig. 4.5) The result should be within the range of 20g~30g.
- d. If the BACK TENSION is out of the range, change the position of the TENSION SPRING or repeat the process of “4. Adjustment of the position of the TENSION POLE”. (Fig. 4.6)

CAUTION:

- If the measurement result is greater than the upper limit, change the hook point of the spring to position “A”.
- Confirm that all of the three probes of TENSION meter are in contact with the tape.
- During measuring, don't touch any other parts of the MECHANISM(i.e, MAINBASE). It is recommended that this measurement be repeated at least three times for an accurate reading.

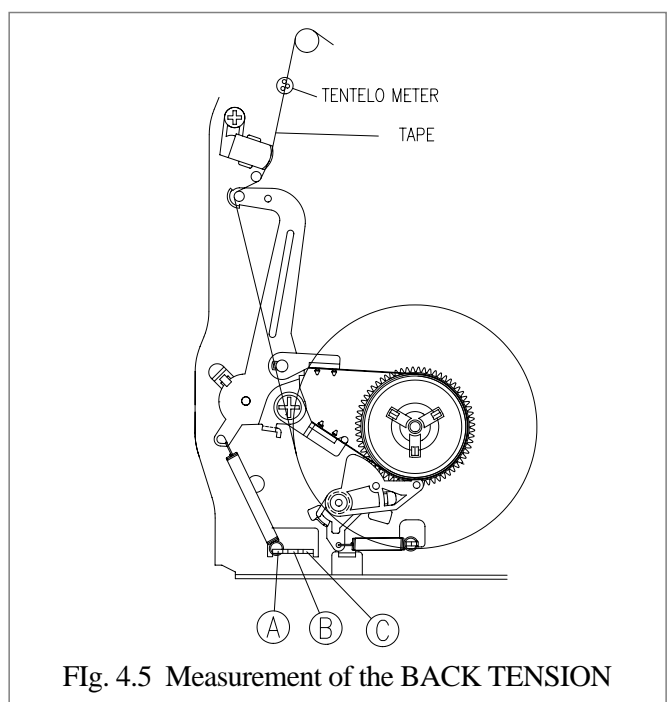


Fig. 4.5 Measurement of the BACK TENSION

4-3. Mechanical Mode

(Operate without a cassette tape)

- Remove the FRONT LOADING Mechanism from the DECK Mechanism.
- Cap the IR LED and pull the FL RACK. This has the same effect with cassette loading to the deck.
- If the S/T POLE BASE is loaded, Play mode starts automatically. If you want other function, press the corresponding button.
- Turn off the power when the Mechanism is in the desired position.

4-4. Adjustment of the position of the TENSION POLE (Fig. 4.6)

- Place the Mechanical mode in the play mode. Refer to the above section “3. Mechanical mode”.
- Confirm that the TENSION LEVER is aligned with the datum hole of the MAINBASE.
- If the requirement “b” is not satisfied, turn the BAND BRAKE ADJUST CAP clockwise or counterclockwise until the two datum holes are aligned.

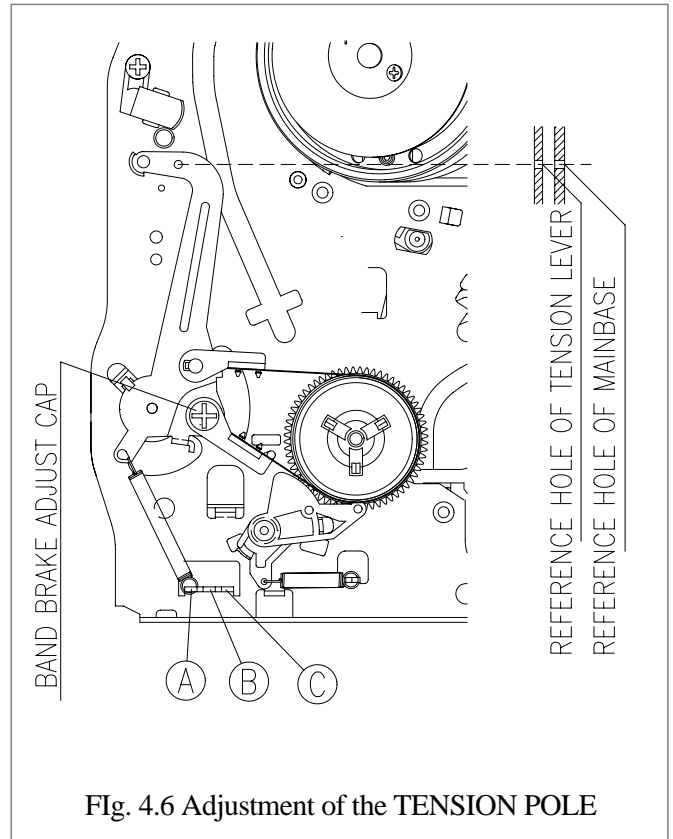
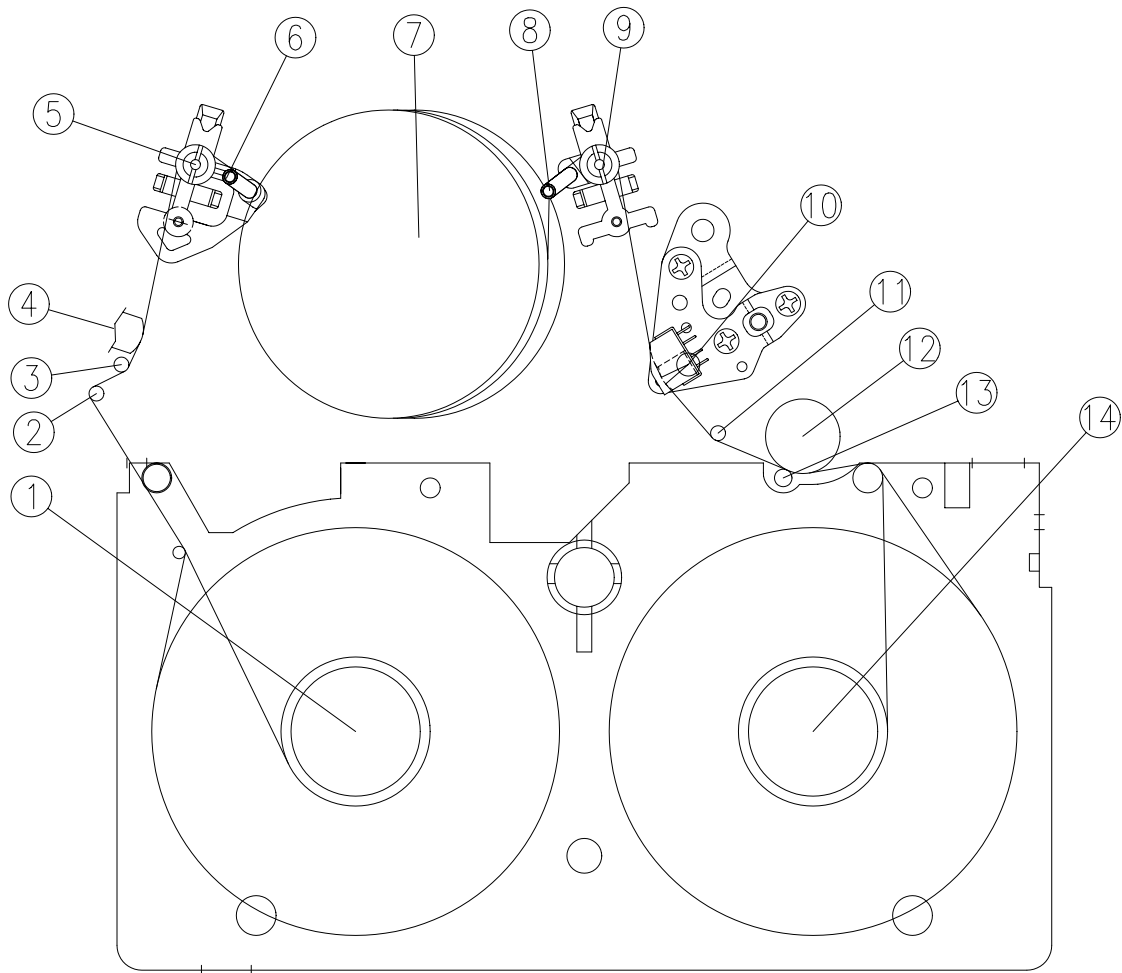


Fig. 4.6 Adjustment of the TENSION POLE

5. ADJUSTMENT OF TAPE TRANSPORTING SYSTEM

The tape transport has been precisely aligned in the factory and normally does not require readjustment. However if adjustment is required, refer to the following chart.



NO.	NAME	NO.	NAME
1	S REEL	8	T SLANT POLE
2	TENSION POLE	9	T GUIDE ROLLER
3	S GUIDE POST	10	ACE HEAD
4	FE HEAD	11	T GUIDE POST
5	S GUIDE ROLLER	12	PINCH ROLLER
6	S SLANT POLE	13	CAPSTAN SHAFT
7	DRUM	14	T REEL

Fig.5.1 A schematic diagram of the tape transport section

If any components shown in Fig. 5.1, tape transport section are changed. To readjust the tape transporting section.

A. Adjustment of the S/T GUIDE ROLLER

- Check the Playing back with a E-180 TAPE.
- Make sure that excessive tape wrinkle does not occur at each S.T GUIDE ROLLER.
- If tape wrinkle is observed at the S/T GUIDE ROLLER, turn the guide roller screw until there is not tape wrinkle.

B. Adjustment of the AC HEAD ASS'Y(TILT)

- Play back a E-180 TAPE and check the running status of lower side of GUIDE POST.
- If there is any problem, Turn the AC HEAD TILT SCREW until the running status improved (Fig. 5.2)

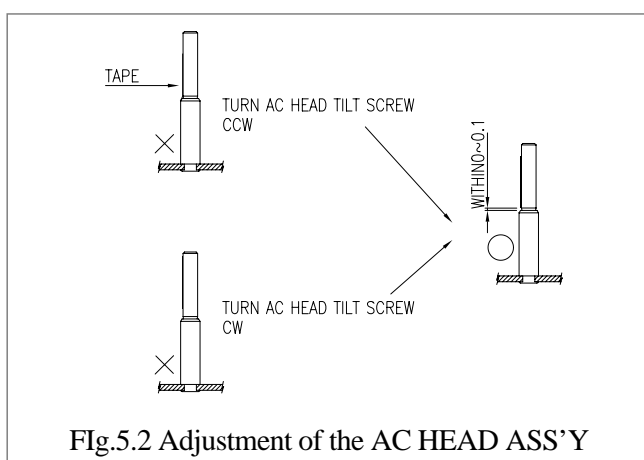


Fig.5.2 Adjustment of the AC HEAD ASS'Y

C. Adjustment of the AC HEAD Height(Fig. 5.3)

- Play back E-180 TAPE.
- Make sure that the gap between the lower end of AC head is 0.25m.
- If the measurement of the gap is different from the reference value 0.25m, turn the screw ①,③ until the desired gap is obtained.

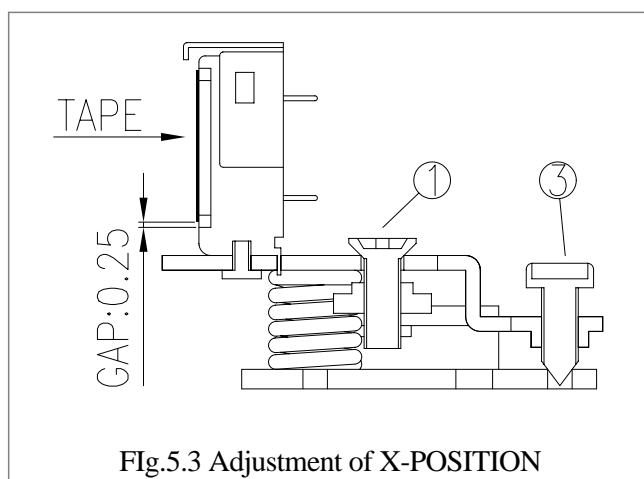


Fig.5.3 Adjustment of X-POSITION

D. Adjustment of the AUDIO AZIMUTH(Fig. 5.4)

- Play back the ALIGNMENT TAPE
(DP2 : SP, PAL, 6KHz)
- Check the AUDIO output with a AUDIO LEVEL METER.
- Turn the AC HEAD AZIMUTH SCREW ② until the maximum AUDIO output(-9dBm ~ -3dBm) is obtained.

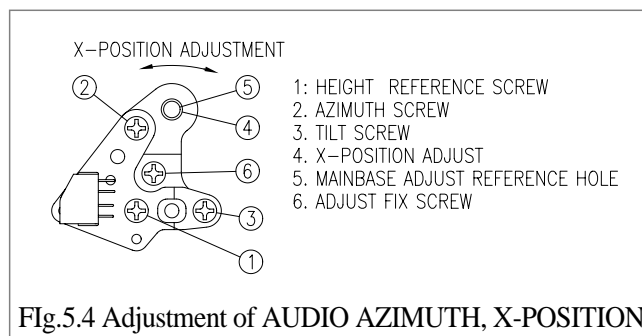
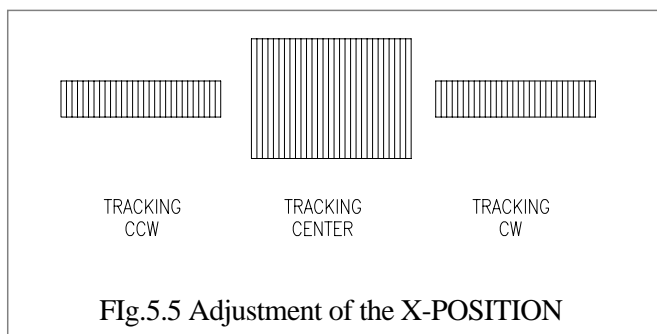


Fig.5.4 Adjustment of AUDIO AZIMUTH, X-POSITION

E. Adjustment of the X-POSITION(Fig. 5.4 5.5)

- Connect the PATH ADJ. FIXTURE to the PT01 on the MAIN CIRCUIT BOARD.
 - Play back the ALIGNMENT TAPE
(DP2 : SP STAIR STEP).
 - Connect the S/W pin and ENVE pin of the PATH ADJ. FIXTURE with the SCOPE PROBE.
 - Insert the adjustment bar in the AC HEAD ADJUST hole ④ and adjust the X-POSITION of the AC HEAD ASS'Y until the ENVE is maximum when the VR is on the CENTER.
- * There is the possibility that another TRACKING CENTER can be occur when the AC HEAD ASS'Y turned completely in the counterclockwise direction, Hence adjust the X-position with AC HEAD ASS'Y adhering closely to the right side until the maximum ENVE is obtained.
- The adjustment of the X-POSITION finished, check if the AUDIO LEVEL is degraded, then readjustment of the AUDIO AZIMUTH is required.

Test Point	S/W PULSE TEST PIN	PATH ADJ. FIXTURE
	ENVELOPE TEST PIN	PATH ADJ.FIXTURE
Measurement Equipment	OSILLOSCOPE	
Adjustment	VR CONTROL	PATH ADJ.FIXTURE
	AC HEAD ADJUST HOLE	ADJUSTMENT BAR

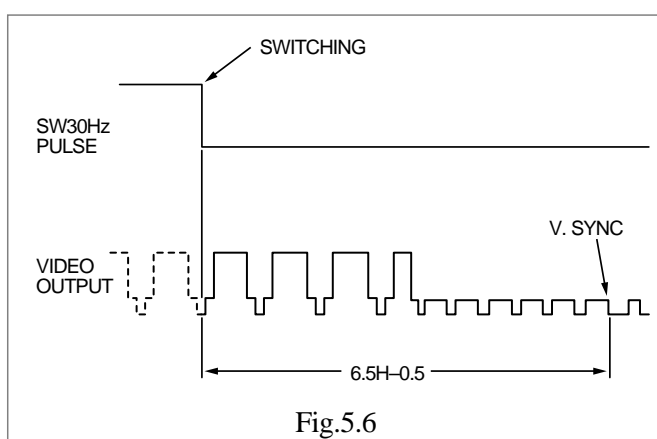


F. PLAYBACK PHASE ADJUSTMENT(Fig. 5.6)

Test Points:	PT01 PIN ③	Main
	Video Out Jack	Rear Panel
Adjust:	REC SWITCH	Main

The Pulse Generator (PG) Shifter determines the video head switching point during playback. Misadjustment of the PG Shifter may cause head switching noise in the picture and/or vertical jitter.

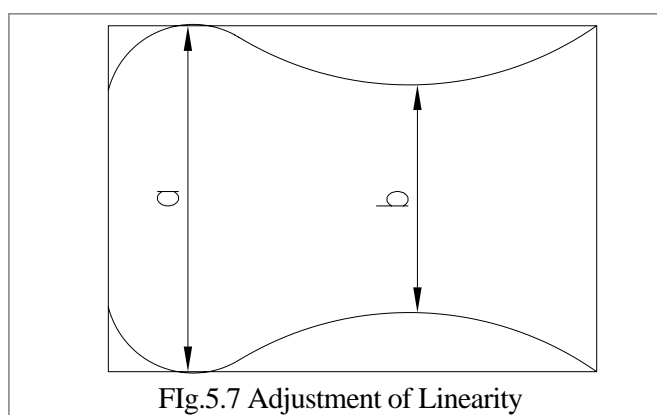
1. Load the instrument with an alignment tape and play back the color bar signal or monoscope signal.
2. Connect Path Fixture to PT01.
3. Connect channel-1 scope probe (1V/div.: 50μsec/div.) to PT01 PIN ③. Trigger the scope on channel-1.
4. Connect channel-2 scope probe (1V/div.) to the Video Out Jack.
5. Set the scope to (-) slope and press the REC SW, the alignment is performed automatically. Confirm that the trailing edge of the SW 30Hz pulse is placed $6.5H \pm 0.5H$ (horizontal) lines before the start of vertical sync pulse.



G. Adjustment of the LINEARITY(Fig. 5.7)

Test Point	S/W PULSE TEST PIN	PATH ADJ. FIXTURE
	ENVELOPE TEST PIN	PATH ADJ. FIXTURE
Measurement Equipment	OSILLOSCOPE	
Adjustment	VR CONTROL	PATH ADJ. FIXTURE
	S/T GUIDE ROLLER	TAPE TRANSPORT SECTION

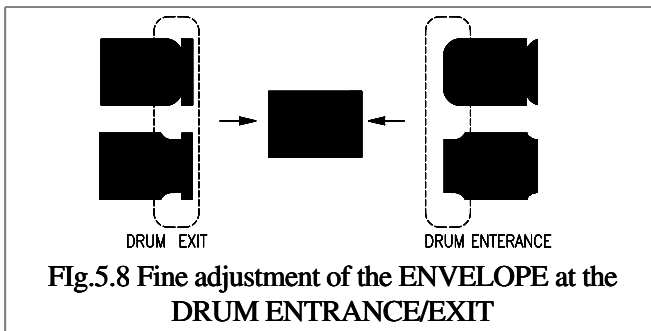
- a. Connect the PT01 on the MAIN CIRCUIT BOARD with a PATH ADJ. FIXTURE.
- b. Play back an ALIGNMENT TAPE (DP2 : STAIR STEP).
- c. Connect the FIXTURE S/W PULSE TEST PIN on the PATH ADJ. CHANNEL-1 SCOPE PROBE.
- d. Connect the VIDEO OUT on the MAIN CIRCUIT BOARD with a CHANNEL-2 SCOPE PROBE.(1V/div).
- e. Adjust the VR CONTROL on the ADJ. FIXTURE until the ENVELOPE signal is maximum while play back the ALIGNMENET TAPE.
- f. Adjust the S/T GUIDE ROLLER until the envelope signal waveforms of the entrance and exit sides are as shown in Fig. 5-7.



H. Adjustment of the wave form of DRUM Entrance / Exit (Fig. 5.8)

Test Point	S/W PULSE TEST PIN	PATH ADJ. FIXTURE
	ENVELOPE TEST PIN	PATH ADJ. FIXTURE
Measurement Equipment	OSILLOSCOPE	
Adjustment	VR CONTROL	PATH ADJ. FIXTURE
	S/T GUIDE ROLLER	TAPE TRANSPORT SECTION

- Connect the PT01 on the MAIN CIRCUIT BOARD with a PATH ADJ. FIXTURE.
- Play back an ALIGNMENT TAPE(DP-2 : STAIR-STEP signal)
- Connect the S/W PULSE TEST PIN on the PATH ADJ. FIXTURE with a CHANNEL-1 SCOPE PROBE.
- Connect the VIDEO OUT on the MAIN CIRCUIT BOARD with a CHANNEL-2 SCOPE PROBE(1V/div).
- Turn the VR CONTROL on the PATH ADJ. FIXTURE clockwise or counterclockwise until the signal shape of ENVELOPE has the constant thickness.(Fig.5.8)
- Adjust the S/T GUIDE ROLLER if the thickness of the ENVELOPE signal is not uniform.



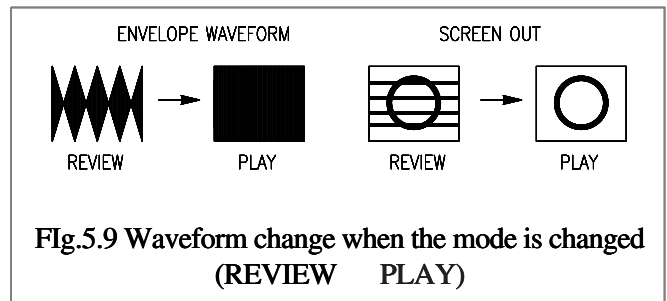
I. REVIEW ⇔ PLAY(Fig. 5.9)

Test Point	S/W PULSE TEST PIN	PATH ADJ. FIXTURE
	ENVELOPE TEST PIN	PATH ADJ. FIXTURE
Measurement Equipment	OSILLOSCOPE	
Adjustment	VR CONTROL	PATH ADJ. FIXTURE
	S/T GUIDE ROLLER	TAPE TRANSPORT SECTION

- Connect the PT01 on the MAIN CIRCUIT BOARD with a PATH ADJ.
- Play back an ALIGNMENT TAPE(DP-2 : STAIR-STEP signal)
- Connect the S/W PULSE TEST PIN on the PATH ADJ. FIXTURE with a CHANNEL-1 SCOPE PROBE.
- Connect the VIDEO OUT on the MAIN CIRCUIT

BOARD with a CHANNEL-2 SCOPE PROBE(1V/div).

- Make the VR CONTROL on the PATH ADJ. FIXTURE to the center to maximize the ENVELOPE signal.
- Play back in the REVIEW MODE about 15 seconds and change to PLAY MODE.
- Check whether the ENVELOPE waveform is restored to its original form within 3 seconds after the REVIEW mode is changed to PLAY mode.
- If the requirement of “g” is not satisfied, Check the running status of tape on the lower part of T GUIDE POST and adjust the S/T GUIDE ROLLER precisely.



J. Checking AUDIO output waveform (Adjustment of AC HEAD TILT & Height)

Test Point	AUDIO OUTPUT	AUDIO OUTPUT JACK
Measurement Equipment	AUDIO LEVEL METER	

- Connect the AUDIO output jack with an AUDIO LEVEL METER.
- Playback an Alignment Tape (DP-1:Color Bar 1KHz Signal)
- Check if the AUDIO output signal level is over -9~-3dBm.
- If the requirement of “c” is not satisfied, readjust the AC HEAD TILT and the HEIGHT until the AUDIO output is maximized. (Fig. 5.2, 5.3)

K. Adjustment of the AUDIO AZIMUTH

Test Point	AUDIO OUTPUT	AUDIO OUTPUT JACK
Measurement Equipment	AUDIO LEVEL METER	

- Connect the AUDIO output JACK with an AUDIO LEVEL METER.
- Play back the ALIGNMENT TAPE(DP-2:STAIR STEP 6KHz Signal).
- Check if the AUDIO output signal level is over : -9 ~-3dBm.
- If the requirement of “c” is not satisfied, readjust the AZIMUTH SCREW of the AC HEAD until the AUDIO output is maximum.(Fig. 5.4)
- Repeat at “**Adjustment of the wave form of DRUM Entrance/Exit**”

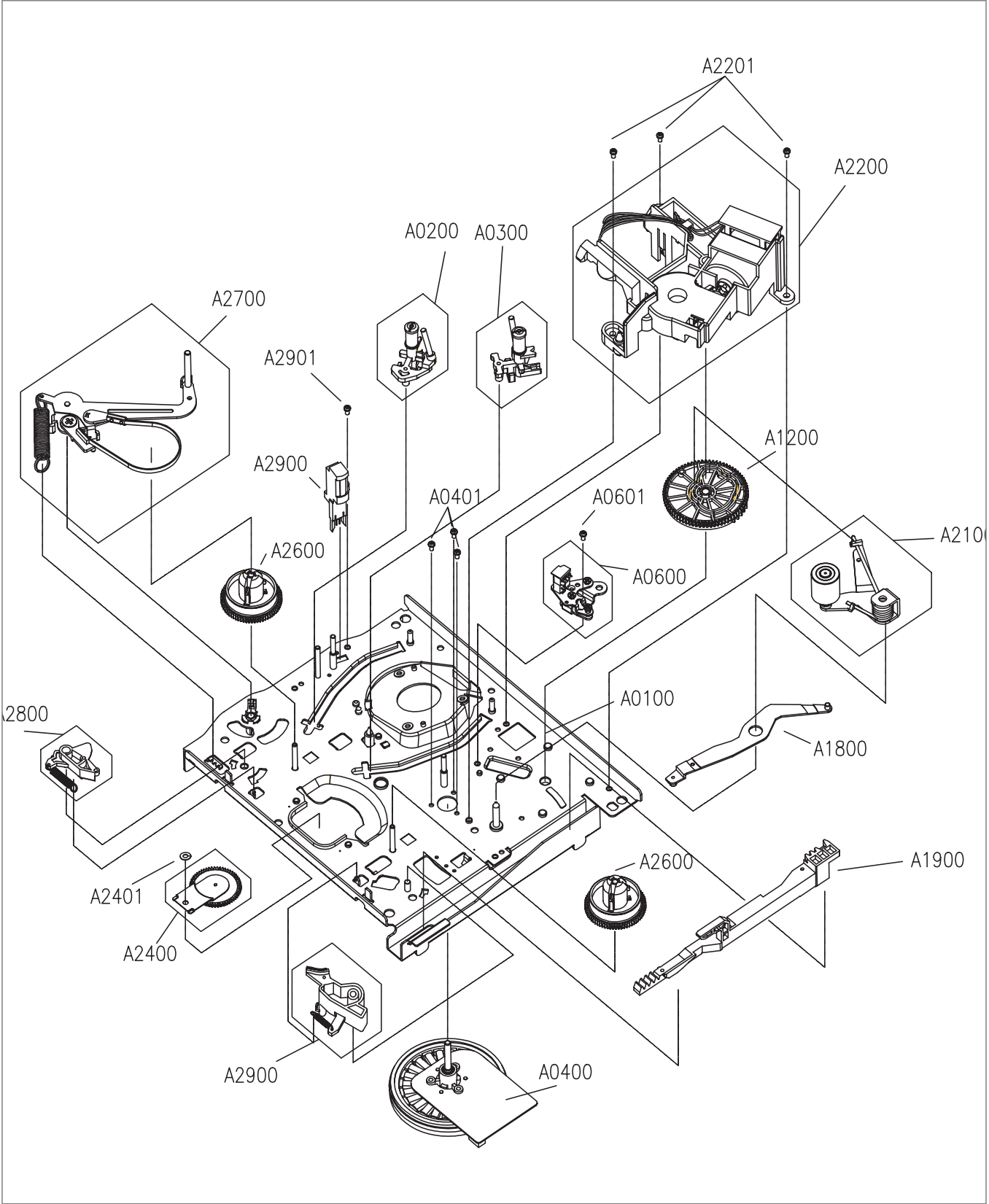
L. X-POSITION

Test Point	S/W PULSE TEST PIN	PATH ADJ. FIXTURE
	ENVELOPE TEST PIN	PATH ADJ.FIXTURE
Measurement Equipment	OSILLOSCOPE	
Adjustment	VR CONTROL	PATH ADJ.FIXTURE
	S/T GUIDE ROLLER	TAPE TRANSPORT SECTION

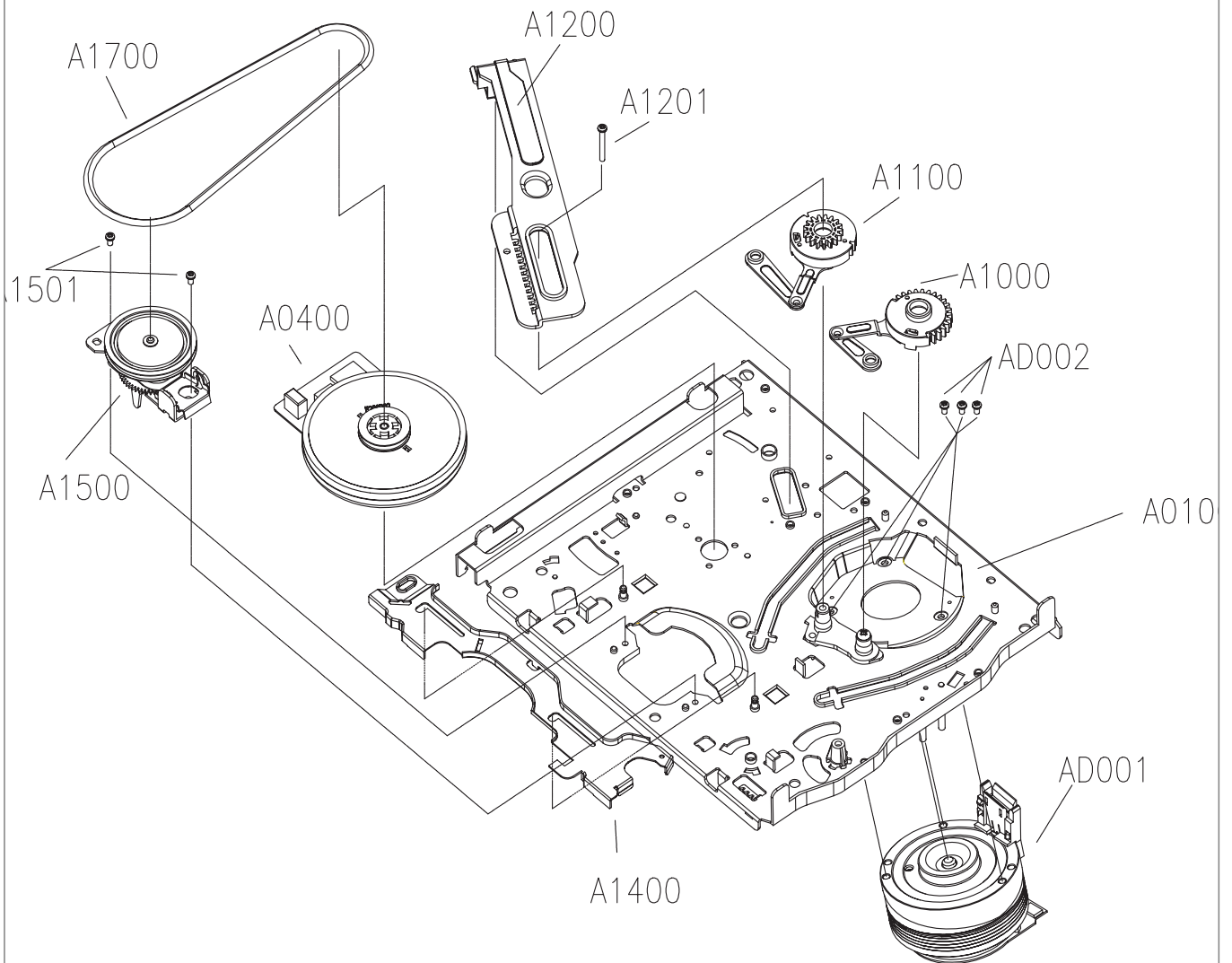
- Connect the PT01 on the MAIN CIRCUIT BOARD with a PATH ADJ.FIXTURE.
- Play back an ALIGNMENT TAPE(DP-2: STAIR STEP Signal).
- Connect theS/W PULSE TEST PIN on the PATH ADJ.FIXTURE with a CHANNEL-1 SCOPE PROBE.
- Connect the VIDEO OUT on the MAIN CIRCUIT BOARD with a CHANNEL-2 SCOPE PROBE(1V/div)
- Check if the ENVELOPE is maximum when the VR CONTROL on the PATH ADJ. FIXTURE is in CENTER.
- If not, readjust the X-POSITION by referring to subitem “E”(Adjustment of the X-POSITION).
- Repeat the process of subite, “F(PLAYBACK

6. EXPLODED VIEW AND PARTS LIST

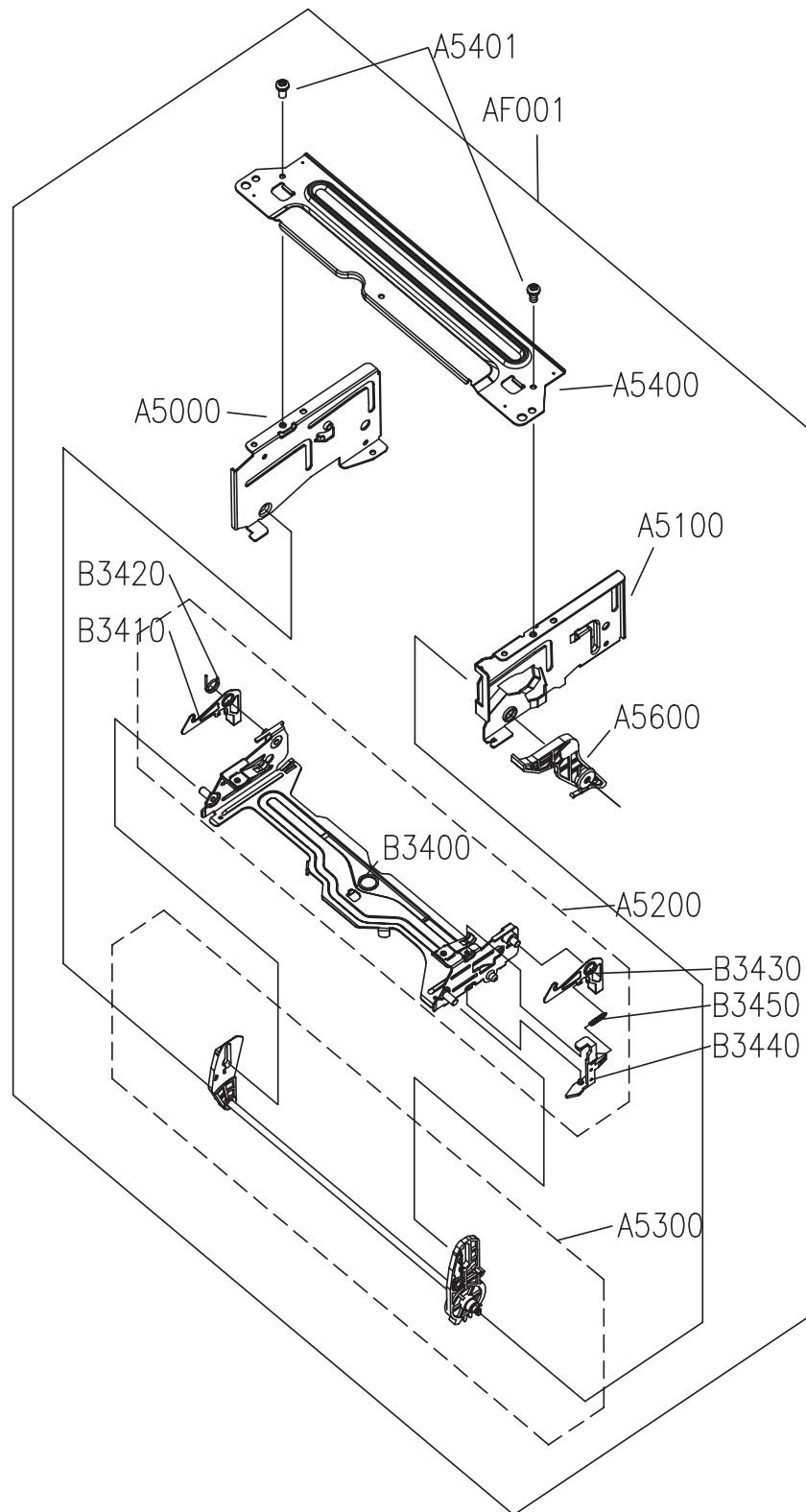
6-1. Exploded view of DECK Ass'y (Top View)



6-2. Exploded view of DECK Ass'y (Bottom View)

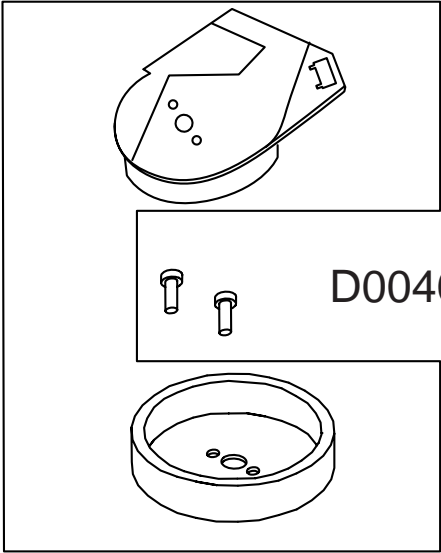


6-3. Exploded view of FL Ass'y



6-4. Exploded view of Drum Ass'y

D0040



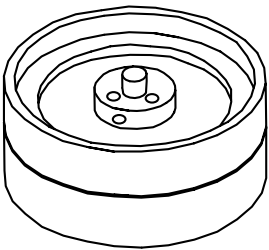
D0020

D0040

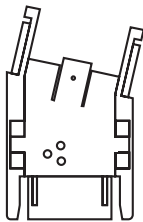
D0050



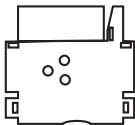
D0010



D0060



D0070



7. PARTS SLIST

7-1. Parts List of Deck Total ASS'Y

LOC.	PARTS CODE	PARTS NAME	PARTS DESCRIPTION
PAL			
M1000	PVDKARP82S	VCR DECK AS(T40)	DRP-8200HVP(N82S-C)N/H/C (2HD SP/LP NON-DLC)
	PVDKARP84S	VCR DECK AS(T40)	DRP-8400HVP(N82S-C)N/H/C(4HD SP/LP NON-DLC)
	PVDKARP86S	VCR DECK AS(T40)	DRP-8600HVP(N82S-C)N/H/C(6HDHI-FINON-DLC)
SECAM			
M1000	PVDKARP82S	VCR DECK AS(T40)	DRP-8200HVP(N82S-C)N/H/C(2HD SP NON-DLC)
	PVDKARS84S	VCR DECK AS(T40)	DRS-8400HVP(N82S-C)N/H/C(4HD SP/LP NON-DLC)
	PVDKARS86S	VCR DECK AS(T40)	DRS-8600HVP(N82S-C)N/H/C(6HD HI-FI NON-DLC)

7-2. Parts List of Drum Price ASS'Y

LOC.	PARTS CODE	PARTS NAME	PARTS DESCRIPTION
PAL			
AD001	97PA283101	DRUM PRICE AS	CYP-T210V(2HD SP/LP NON-DLC)
	97PA283201	DRUM PRICE AS	CYP-T410V(4HD SP/LP NON-DLC)
	97PA283601	DRUM PRICE AS	CYP-T610V(6HD HI-FI NON-DLC)
SECAM			
AD001	97PA283101	DRUM PRICE AS	CYP-T210V(2HD SP NON-DLC)
	97PA283301	DRUM PRICE AS	CYS-T410V(4HD SP/LP NON-DLC)
	97PA283501	DRUM PRICE AS	CYS-T610V(6HD HI-FI NON-DLC)

7-3. Parts List of VCR Deck ASS'Y

LOC.	PARTS CODE	PARTS NAME	PARTS DESCRIPTION
DRUM ASS'Y			
D0010		DRUM AS	(REFERRING TO LIST OF DRUM PRICE)
D0020	97SA327500	DRUM M/T AS	E20XL-35
	97SA327400	DRUM M/T AS	DMVDMTO4M1
D0040	7001260711	SCREW MACHINE	PAN 2.6X7 MFZN
D0050	97SA320400	EARTH GROUND AS	T-DRUM
D0060	97S2303600	HOLDER MAIN	POM(KEPITAL F20)
D0070	97S2303800	HOLDER CAP(B)	POM(4CH)
D0070	97S2303900	HOLDER CAP(C)	POM(6CH)
DECK ASS'Y			
AM001		DECK AS	(REFERRING TO LIST OF DRUM PRICE)
A0100	97SA318100	MAIN BASE AS	T-MECHA
A0200	97SA316500	S SLANT POLE AS	T-MECHA
A0300	97SA316600	T SLANT POLE AS	T-MECHA
A0400	97S8102300	MOTOR CAPSTAN	DMVCMC08D
	97S8102100	MOTOR CAPSTAN	F2QSB-53(PWM)
A0401	97S3102000	SCREW TAPPTITE	TT2 BIN-P 2.6X7 MFZN
A0600	97SA320500	AC HEAD AS	T-MECHA
A0601	7051300611	SCREW MACHINE	PAN 3X6 SW MFZN
A1000	97SA316800	L LOADING AS	T-MECHA
A1100	97SA316900	R LOADING AS	T-MECHA
A1200	97S2709500	RACK LOADING	SECC T1.2
A1201	7008301911	SCREW MACHINE	WAS M3*19 MFZN

LOC.	PARTS CODE	PARTS NAME	PARTS DESCRIPTION
A1400	97S0904310	PLATE CONNECT-H	SECC T1.0
A1500	97SA319410	REEL BRKT TOTAL AS	T2-MECHA
A1501	7274300511	SCREW TAPPTITE	TT3 RND 3X5 MFZN
A1700	97S5500400	BELT REEL	CR68
A1800	97S2623200	LEVER RELAY	SECC T1.2
A1900	97S2709600	RACK FL	PBT(DY4410GF) NATURAL
A2000	97S2708200	GEAR CAM	DERLIN 100
A2100	97SA317150	PINCH LEVER TOT AS	T-MECHA
A2200	97SA318010	LC BRKT AS	T-MECHA
A2201	7274300611	SCREW TAPPTITE	TT3 RND 3X6 MFZN
A2400	97SA317310	IDLER PLATE TOT AS	T2-MECHA
A2401	97S3108200	POLYWASHER	D2.6XD6.0XT0.5
A2600	97S2909400	TABLE REEL	POM(F20-03) BLACK
A2700	97SA317200	TENSION LVR TOT AS	T-MECHA
A2800	97SA317400	S BRAKE AS	T-MECHA
A2900	97SA317510	T BRAKE AS	T2-MECHA
A3000	97S8015000	HEAD FE	HVFHU0030AK
	97S8023100	HEAD FE	MH-131DT
A3001	7274300811	SCREW TAPPTITE	TT3 RND 3X8 MFZN
AC001	97SA326900	HEAD CLEANER AS	T-MECHA
FL ASS'Y			
AF001	97SA261010	F/LOADING AS	T-MECHA
AF002	7274300511	SCREW TAPPTITE	TT3 RND 3X5 MFZN
A5000	97S2401400	BRKT FL L	SECC T1.0
A5100	97S2401500	BRKT FL R	SECC T1.0
A5200	97SA317700	CST HOLDER AS	T-MECHA
B3400	97SA415400	CST HOLDER SUB AS	T-MECHA
B3410	97S2621600	LEVER SAFETY L	SECC T1.0
B3420	97S3008900	SPRING SAFETY LEVER	SUS304 WPB D0.5
B3430	97S2621700	LEVER SAFETY R	SUS304 T0.5
B3440	97S2621800	LEVER RELEASE	POM (F20-03) NATURAL
B3450	97S3009000	SPRING RELEASE LEVER	SUS304 WPB D0.25
A5300	97SA317800	F/L LEVER AS	POM (F20-03) BLACK
A5400	97S0903910	PLATE TOP	SECC T1.0
A5401	7274300611	SCREW TAPPTITE	TT3 RND 3X6 MFZN
A5600	97S2622700	LEVER DOOR OPENER	POM(F20-03) BLACK